DOCUMENT RESUME

ED 475 533 HE 035 770

AUTHOR	Dinca, George
TITLE	Financial Management and Institutional Relationships with Civil Society. Papers on Higher Education.
INSTITUTION	United Nations Educational, Scientific, and Cultural Organization, Bucharest (Romania). European Centre for Higher Education.
ISBN	ISBN-92-9069-170-5
PUB DATE	2002-00-00
NOTE	216p.; For the four-volume series, see HE 035 767-770.
AVAILABLE FROM	Carfax Publishing, Taylor & Francis Ltd., Customer Services Department, 325 Chesnut Street, 8th Floor, Philadelphia, PA 19106 ($15). Tel: 800-354-1420 (Toll Free); Fax: 215-625-2940; Web site: http://www.cepes.ro.
PUB TYPE	Books (010) -- Reports - Descriptive (141)
EDRS PRICE	EDRS Price MF01/PC09 Plus Postage.
DESCRIPTORS	*Educational Administration; Educational Finance; *Financial Support; Foreign Countries; Fund Raising; Funding Formulas; *Higher Education
IDENTIFIERS	*Europe; Romania

ABSTRACT

This volume is the third in a series of four publications on aspects of governance in higher education produced by a project to create a Regional University Network on Governance and Management of Higher Education in South East Europe. This handbook gives a general overview of the ways in which higher education is funded in selected countries in western Europe, with a more detailed presentation of higher education funding in France and England. Higher education funding in Romania is described to show the ways in which an Eastern European country in transition has adopted Western European methods of state and nonstate funding for its universities. The study provides many ideas for the financial reform of public higher education systems and institutions. The chapters are: (1) "European Background"; (2) "Funding Mechanisms for Universities: Financial Autonomy"; (3) "Financial Management at University Level"; and (4) "Worked Examples." Seventeen attachments (annexes) provide detailed information about the higher education systems examined. (Contains 8 figures, 33 tables, and 19 references.) (SLD)

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George Dincă

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Papers on Higher Education

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Regional University Network
on Governance and Management
of Higher Education in South East Europe

Financial Management and Institutional Relationships with Civil Society

by

George Dincă

Bucharest
2002

Papers on Higher Education

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ISBN 92-9069-170-5
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Preface

This volume is the third in a series of four publications on aspects of governance in higher education that are being produced as a partial outcome of the joint UNESCO-CEPES – European Union project to create a Regional University Network on Governance and Management of Higher Education in South East Europe. The Programme was originally presented through Table One "Democracy and Good Governance" of the Stability Pact for South East Europe as part of its "quick-start package". It has been developed through the Task Force on Education and Youth, Enhanced Graz Process, a coordinating mechanism for educational co-operation with South East Europe.

The basic assumption of the Programme is that, when considering the overall situation in the countries of the region, education in general – higher education in particular – should play a key role in supporting the search for sustainable peace, reconciliation, and development of civil society.

Its wider objectives include the following:

- to integrate the universities and higher education authorities of Southeastern Europe into existing European networks;
- to develop higher education policies that are based on European standards and international best practice in the areas of strategic management, financial management, relations with civil society, and quality assurance;
- to develop national and institutional capacities and skills in higher education strategic management and policy making;
- to stimulate the establishment and/or consolidation of new structures and mechanisms of financial management, based on the principles of university autonomy and accountability, while encouraging the establishment of links with civil society and local economies.

The anticipated outcomes of the programme are expected to include the following: *(i)* integration of the countries of South Eastern Europe into the European Higher Education Area as defined in the Bologna Declaration; *(ii)* the creation of a network of the authorities and institutions involved in higher education through which good practice in academic governance, policy making, strategic and financial management, and quality assurance in higher education can be exchanged; *(iii)* strengthened national institutional capacities and skills in regard to strategic management and policy making in higher education; *(iv)* the creation of new structures and mechanisms for financial management, based on the principles of university autonomy and accountability, while encouraging links with civil society and local economies.

This handbook, the third in the series of four, gives a general overview of the ways in which higher education is funded in selected countries in Western Europe and a more detailed presentation of higher education funding in France and England. Both the funding of systems as a whole and individual higher education institutions as parts of national systems are discussed. In particular the English HEFCE funding system and the French government funding system are detailed. The case of Romania is cited to illustrate the ways in which an Eastern European country in transition has adopted Western European methods of state and non-state funding for its public universities. The workings of the formula funding system that has been adopted for the public universities at system as well as at institutional levels are described in detail.

All in all, this study provides many ideas for the financial reform of public higher education systems and institutions, some of them easily adapted to the realities of other countries; others, with much greater difficulty. However, as the author insists, all of the ideas and models presented must, if used, be adapted with great care to individual national and institutional realities, if they are to give positive results. They cannot be applied mechanically and blindly.

We offer this third handbook, that is published as a volume in the UNESCO-CEPES series, *Papers on Higher Education*, in the hope that it will contribute strongly to the anticipated goal of creating a successful Regional University Network of Governance and Management of Higher Education in South East Europe.

Jan Sadlak
Director of UNESCO-CEPES

Introduction

This publication should be viewed as a handbook, its purpose being that of presenting information on certain developments and trends in the domain of higher education funding and of institutional financial management over the last decade.

Such current issues in mass higher education as: growth, diversity, quality and standards, rise of managerialism, and the decline in real resources demand consequent adaptations in the funding of higher education. Buffer institutions at system level and administrative managers at institutional level are expected to provide a balance between regulation *versus* autonomy and planning *versus* unexpected challenges.

To provide a picture of the existing European funding models, the following mechanisms are considered to be representative: input-and output-oriented funding, formula based funding, and demand-side and supply side funding. When considering a national higher education financing model, one should refer it to the European context, to the long-term tradition of higher education in each European country, and to the exigencies imposed by the processes of globalization.

Consequently, the first chapter of this study is devoted to an analysis of the European context. The main idea developed, as a conclusion of this analysis, is that European countries have reached the upper limit with respect to the level of funding of higher education that their governments will allot. On the other hand, the inadequate funding of higher education could lead to an inability on the part of certain European countries to deal with future economic, social, and cultural developments. It is in such a context that the funding of higher education from public sources must continue, while the implications of the principle of equity and accessibility must be considered as universities concern themselves with finding additional sources of funding, other than what is supplied by the state budget.

Strategies for increasing the institutional incomes of universities are discussed in Chapter 3 and are related to a more general topic, that of the need to develop so-called "entrepreneurial universities" (the arguments being taken from Clark (1998). The assumption here is that the elaboration of a funding mechanism (as a component of a funding model) requires the existence of an adequate legislative framework. An appropriate legislative framework should establish the fact that higher education is a national priority and that universities are autonomous from both the academic and the financial point of view.

The methodology of allocation of the funds coming from government budgets relies on principles of *global financing*; *i.e., the funds are given as a block grant* to each university. Therefore, universities become responsible for the ways in which they use the funds, but they are subject to two types of control: first, concerning legal requirements and second, related to the adequacy of the ways in which funds are engaged. *The allocation procedures* whereby the funding policy is implemented determine the sizes of block grants for each university operating in terms of *certain stated quantitative criteria.*

In most of the European countries, the allocation procedures use *input-funded criteria,* whereby the number of enrolled students is the most important criterion (the comparative analysis of the funding systems implemented in different European countries is taken from Kaiser *et al.*, (2000). The procedure used in Romania for allocating core funding and the procedure used in the United Kingdom in 2001 by HEFCE (are based on the presentation given in the HEFCE bulletin, *Funding Higher Education in England: How the HEFCE Allocates Its Funds*) are described as case studies. Concerning the Romanian procedure, the presentation of a series of illustrative examples was preferred - aimed pointing out the influence of different parameters but also the side effects of this procedure. Regarding the funds allocation procedures in the area of scientific research, the RAE (Research Assessment Exercise) used in the United Kingdom was cited. The assumption is that the RAE could be a suitable starting point, especially for the countries involved in the processes of building financial models, because it operates in terms of a rigorous policy with quantitative parameters, therefore reducing the effects of subjective factors.

Being faced with the large variety of paradigms and particular cases involved in establishing a financial strategy, the problem of identifying the trends of future evolution arises in a natural way. Several comments and also possible answers are derived from Daniel, Schwarz, and Teichler (1999).

The main features of financial management at the level of individual universities are:

- the efficient use of the funds;
- the generation of their own income;
- the design of realistic strategic plans for the development of individual universities.

The efficient use of funds requires an appropriate distribution of the sums allocated by the budget to various components of each university. The allocation procedure for salaries that has been implemented by a Romanian university is presented as a case study (Mihai, 2001). An analysis of the factors that determine the cost per student is also supplied, leading to the conclusion that cost optimization does not mean cost reduction. Cost optimization means the optimization of the rate of expense and the ensuing quality of the graduated student, as estimated in terms of the acquired knowledge and competencies. The problem of generating individual income is treated in a larger framework represented by an analysis of the trends favouring an entrepreneurial university. Also, there are a series of remarks with respect to the evolutionary trends cited as "the strategic plan for institutional development".

In addition, certain *open problems* are presented for further consideration. Three topics are of great importance and should be thoroughly considered when attempting to improve the financing mechanisms:

- the better use of output criteria in allocating core funding to universities;

- the identification of an adequate system of indicators system for academic and managerial performance evaluations and the evaluation of influence on university funding;
- insurance of the convergence of trends in the future development of universities in favour of the requirements of globalization (some interesting ideas related to this subject can be found in Sadlak (2001), Magrath (2001), Daxner (2000), and Frenyó (2000).

Chapter 1

European Background

1.1. THE FINANCIAL CRISIS AFFECTING EUROPEAN HIGHER EDUCATION

It is unanimously acknowledged that, despite various differences, higher education issues rank first among all European countries. There are at least two main justifications of this concern:

- Universities play an ever increasing cultural and social role in modern society;
- Faced with globalization, universities have to deal with new challenges;

All European higher education systems have gone through major changes during the last few decades. It is to be noted that ever since 1995 there has been a significant increase in the number of students, to name only the quantitative changes that have occurred. As an illustration of the 1955-1994 period, see Table 1 below. It shows that the number of students has increased more than ten times in almost all the European countries.

Considering the ratio between student numbers in 1999 and those in 1995, the most spectacular growth in student numbers took place in Norway (34.1), Spain (29.7), Portugal (18.8), and Greece (18.4).

The data presented in Table 1 were selected from Annexes 1a and 1b above. Annex 1a offers a more complete view of this phenomenon, for it refers to the number of students by level of Education and by sex for the 1970 - 1996 period, for a selected number of countries, while Annex 1b presents information on enrollments with regard to the 1999-2000 academic year for the OECD countries.

Table 1. Numbers of students in Europe: 1955-1994

		1955		1985		1994	1994/ 55	1999*	1999/ 55
	U	Total	U	Total	U	Total	Total	Total	Total
Austria	-	19,124	160,904	173,215	210,639	227,444	11.9	252,893	13.2
Belgium	-	37,761	103,598	247,499	123,638	385,098	10.1	351,788	9.3
Denmark	-	17,864	91,450	116,319	133,128	169,619	9.5	189,970	10.6
Switzerland	-	16,021	74,806	110,111	91,037	148,664	9.3	156,390	9.8
Finland	-	16,628	92,230	127,976	124,370	197,367	11.9	262,890	15.8
France	-	193,886	978,519	1,278,581	1,395,103	2,083,232	10.7	2,012,193	10.4
Germany	-	173,353	1,336,395	1,550,211	1,539,463	1,867,491	10.6	2,087,044	12.1
Greece	-	21,055	110,917	181,901	-	314,002	14.0	387,859	18.4
Ireland	-	11,040	39,120	70,301	56,190	117,641	10.7	151,137	13.7
Italy	-	139,018	1,176,726	1,185,304	1,668,906	1,681,944	12.1	1,797,241	12.9
United Kingdom	-	132,917	352,419	1,032,491	---	1,614,652	12.1	2,080,962	15.6
Norway		5,513	41,658	94,658	77,951	176,722	32.1	187,482	34.1
Netherlands	-	72,512	168,858	404,866	187,958	512,403	7.1	469,885	6.5
Portugal	-	18,914	70,244	103,585	273,118	276,263	14.6	356,790	18.8
Spain	-	62,236	882,798	935,126	1,263,507	1,469,468	23.6	1,786,778	29.7
Sweden	-	22,647	-	183,697	---	234,466	10.4	335,124	14.8

U: universities and equivalent institutions (according to the UNESCO definition)
Source: *UNESCO Statistics Year Book*, except for Belgium – the 1994/55 data on Belgium having been selected from the General Statistics Year Book on Education, published by the French Community Ministry in Belgium.

**Source*: OECD Database, 2002: «http://www1.oecd.org/scripts/cde/viewdb.asp?DBNAME=EDU_UOE&DBICON=%2Ficons%2Foecd%2Egf»

Annex 1a presents both the number of students (higher education students) as well as information on the selection pool, therefore one can infer the ratio between the number of higher education students and the number of secondary education graduates.

Higher education has transformed itself from an élite-targeted domain into a mass-targeted one. Depending on the country, between one-third and two-thirds of the secondary education graduates are enrolled in higher education institution.

Such an increase in the number of students has also been accompanied by major structural changes. Various types of institutions have grown out of traditional universities, focussing mainly on vocational training. Generally speaking, this type of training has developed at higher costs than the traditional type of training.

As to higher education financing, nowadays all specialists agree that, since the 1970's, higher education has been experiencing a profound financial crisis (Mora, 1997).

This crisis is explained by several factors:

1.1.1. Structural Changes within Systems

i. Increasing numbers of students (a fact which has already been mentioned);

ii. No clear-cut distinctions between higher education institutions so far as their objectives and structures are concerned.

The Humboldtian academic pattern was promoted in most European countries as the single possible system to transmit knowledge and to train highly competent professionals. All the recent diversification processes should have triggered decreased higher education costs. But the non-academic sector of higher education, initially oriented towards short-term programmes, has been progressing, by some kind of academic drifting, towards ever longer programmes which have also required increased subsidies. This solution has had a negative effect, namely overall higher costs and ineffectiveness besetting the higher education system in many European countries.

iii. Increased concern for the quality and quantity of services provided by universities.

In most European countries, universities are clearly concerned with multiplying and improving the services they provide to the students as well as to the community at large.

iv. Increased higher education costs triggered by its specific production system.

The higher education "production" system has been only slightly influenced by "technological" changes.

All competitive economic sectors have gradually adopted technological changes; consequently, productivity and workers' wages have naturally increased (mainly the wages of highly skilled workers). Unlike these domains, the higher education production system still largely resorts to the same basic technology as a century ago (lectures, seminars, etc). The productivity of the system has not dramatically improved. Nevertheless, (and this is true mainly for the developed countries) staff salaries have increased following the same pace as salaries in the production sectors, so that highly qualified staff employed by higher education should have competitive salaries as compared to the salaries earned by staff having the same professional level and the same expertise and being employed by the production sectors.

1.1.2. The General Crisis of the State

The present crisis is mainly generated by the harsh competition existing between various public sectors (ministries) with a view to obtaining public funds.

European governments are faced with strong pressures exerted by the other sectors. Most European countries have ranked as first among their priorities the need to cut public spending and to have a balanced budget. The European Union Member States in particular have been trying to achieve this objective so as to meet the requirements of the European single currency.

1.1.3. A New Role for Higher Education in the Modern State

For the last two centuries, one of the fundamental missions of universities was to train a élite able to govern the State. This role has been mainly visible in the European countries that adopted the so-called Napoleonic model of the university.

The state accepted to finance the universities as the latter served the state, providing the state with the highly trained personnel to be employed in public service. Moreover, the costs of higher education were relatively low, therefore not a real burden on the public budget. But, for the last three decades, higher education has taken such a turn in its development in most European countries that the main role universities formerly had has been modified. Universities have turned into institutions meant primarily to meet the needs of production and of society at large. Consequently, the State is no longer inclined to single-handedly assume responsibility for financing higher education.

Owing to all the above-mentioned causes, governments seem to have reached the upper limit of their financing possibilities, namely to finance higher education out of the public funds. More and more governments state they can no longer allot a higher percentage of their public budgets to higher education.

On the other hand, economic growth and competitiveness are generally accepted as posing a serious challenge to Europe. Present day investments are likely to be insufficient to sustain the future development of Europe.

To resolve this contradiction, most specialists recommend:

- increased private financing for higher education;
- enhanced efforts by universities to generate their own revenues.

Further on, we shall make a few comments and give a few details regarding both recommendations given by their importance and topicality. And now, we shall present some statistical data to support the general statements that have outlined the European background.

ON THE NUMBER OF STUDENTS.

The information is presented in Table 1a and Annexes 1a and 1b. Table 1 illustrates the development of the number of students in Europe between 1955–1994, the reference years being 1955, 1985, 1994.

The most spectacular increase in the number of students for this period can be observed in Norway (32.1 times larger), Spain (23.1 times larger), Portugal (14.6 times larger) etc.

France had the largest number of students in 1994 (2,083,232); that number was to change as follows: in 1995 it was 2,091,688; in 1996 it was 2,062,495; while in 1999 it was 2,012,193. Between 1985-1995, the number of students in France expanded from 1,278,581 to 2,091,688. In 1999, Germany had 2,087,044 students, while Italy had 1,797,241 students, and the United Kingdom had 2,080,962 students. Presented below is a table comparing the numbers of students these countries had between 1985-1999.

Such an expansion in the number of students is a consequence of various tendencies that have been strongly active over the last decades. One such essential tendency is reflected in the parameter called "Gross Enrollment Ratio in Higher Education" (GERHE) (Annex 4).

Table 2. Expansion of student enrollments: 1985-1999.

Country	1985	1995	1999*
France	1,278,581	2,091,688	2,012,193
Germany	1,550,211	2,144,169	2,087,044
Italy	1,185,304	1,775,186	1,797,241

**Source*: OECD Database, 2002: «http://www1.oecd.org/scripts/cde/viewdb.asp?DBNAME=EDU_UOE&DBICON=%2Ficons%2Foecd%2Egf»

Indeed, if GERHE has a high value, it means that the young generations have a very clear idea of the need to hold an academic degree for their future careers. If one cannot fully state that such an attitude is the expression of their trust in universities, it is nevertheless justified by necessity.

On the other hand, if we analyze the evolution of the secondary education population (See Annex 1a and 1b), we can see that there were neither explosions nor dramatic decreases between 1985-1995 (for each five-year interval, the evolution fluctuates, with no sharp variations around an average value). Thus, it is only natural to witness a consistency between the growth in the number of students and a high GERHE value.

Table 3 illustrates this consistency (the data originate in Annex 3a and 3b).

Table 3. Relation of the gross enrollment ratio in higher education to the expansion of student enrollments

Country	GERHE 1990	Number of students 1990	GERHE 1995	Number of students 1995	GERHE 95/ GERHE 90	Students no 95/Students no 90
Finland	48.9	165,714	70.4	213,995	1.44	1.29
Norway	42.3	142,521	58.6	180,383	1.39	1.27
Belgium	40.2	276,248	56.3	358,214	1.40	1.30
France	39.6	1,698,938	51.0	2,091,688	1.29	1.23
U.K.	30.2		49.6		1.64	
Denmark	36.5	142,968	48.2	174,975	1.32	1.22
Netherlands	39.8		48.0		1.21	
Spain	36.7	1,222,089	47.8	1,591,863	1.30	1.30
Austria	35.2	205 767	47.4	328 981	1.35	1.16
Sweden	32.0		46.7		1.46	
Germany	33.9		46.1		1.36	

Note: GERHE (Gross Enrollment Ratio Higher Education)

Annexes 12-14 and 15-17 offer the principal data enabling one to establish a qualitative assessment of the way that European higher education is financed. These annexes refer to:

- public expenditure as a percentage of GNP for the 1970-1996 period, as compared to the global average, the European average, and the average of a group of countries in transition (Annex 12);
- the evolution of public expenditure as a percentage of GNP for the 1990 and 1996, as compared to the global average, European average, and the average of a group of countries in transition (Annex 13);
- estimated public expenditure on higher education per student, for the year 1996, for a selected number of European countries-(USD) (Annex 14);
- estimated public expenditure on higher education per student, for the year 1996, for a selected number of European countries-(purchasing power parity) (Annex 14);
- Estimated public expenditures on higher education per student, for the year 1996, as compared to a selected number of European countries - (USD and purchasing power parity) (Annex 15).

Some data referring to Romania are included in Annexes 16 and 17:

- the evolution of the cost coefficients by fields of study in Romania for the 1991-2001 period (Annex 16);
- the number of equivalent students in the budget system, the number of students (fields of study) financed from the state budget, and the budget distribution by fields of study for the 1991-2001 period in Romania (Annex 17).

In addition to the information on the percentage of GNP allotted by various European countries to education, it is interesting to identify and to analyze the share allotted to higher education from that initial outlay. Some data are included in the table below (Table 3).

After analyzing the data included in this table, one can conclude that all European Union Member States increased the share they allotted to higher education out of an initial budget allotment destined to education for the 1950-1970 period, then that a period of stability followed between 1970-1985, and finally that a period of very rapid growth followed which began in 1985.

Table 4. Higher education expenditure allocations in the public budget for education: 1950-1995

Country	1950	1960	1970	1975	1985	1993	1995
Austria	12.9	11.0	13.4	14.7	16.6	18.6	19.4
Belgium	8.8•	6.0	13.3	15.3	16.7	17.3	20.3
Denmark	7.9	9.1	20.8	20.8	21.9	25.0	22.8
Switzerland	--	--	17.5	17.0	18.1	20.3	20.0
Finland	4.6	4.6	9.8	12.8	18.7	28.7	26.1
France	7.8•	12.0	16.6	14.1	12.9	16.7	16.5
Germany	9.4	13.2	18.4	17.5	20.8	23.7	21.8
Ireland	--	--	13.9	17.7	17.7	21.5	23.3
Italy	--	8.8	8.8	13.3	10.2	13.7	15.7
U.K.	--	--	24.8	21.1	19.8	22.3	23.0
Norway	7.2	7.8	12.2	13.3	13.5	25.9	26.0
Netherlands	8.4	14.8	22.1	18.3	26.4	32.1	31.0
Portugal	12.2	9.6	--	10.9	12.7	14.2	14.9
Spain	17.5	8.8	18.2	15.1	--	15.3	14.7
Sweden	4.4	8.0	14.5	12.3	13.1	15.8	26.7

Source: UNESCO Year Book, the years •1953, *World Education Report* 1998

Let us note B_{ed} the total education budget and B_{invs} the budget allotted to higher education.

In 1950, the ratio for Germany was $\left(\frac{B_{invs}}{B_{ed}}\right)_{1950} = \frac{9.4}{100}$, while in 1993 the value of the same ratio was 23.7 percent. Here are some other examples to illustrate this spectacular growth:

Denmark: $\left(\frac{B_{invs}}{B_{ed}}\right)_{1950} = \frac{7.9}{100}$, $\left(\frac{B_{invs}}{B_{ed}}\right)_{1993} = \frac{25}{100}$

Finland: $\left(\frac{B_{invs}}{B_{ed}}\right)_{1950} = \frac{4.6}{100}$, $\left(\frac{B_{invs}}{B_{ed}}\right)_{1993} = \frac{28.7}{100}$

Table 4 confirms the qualitative evolution described above. It illustrates the evolution (in percentages) of the GDP allocation for higher education over the 1960-1995 period.

An interesting indicator is the ratio of the average global unit cost per student and the GDP per capita. Annex 4b presents the total public expenditure on education by level of education and year in OECD countries.

Table 6 illustrates the evolution of this coefficient (as a percentage) for the 1975-1995 period.

This evolution offers a very clear image of the strategic options depending on available resources. One should notice that the coefficient has decreased in most countries - more dramatically in the United Kingdom in which:

$$\left(\frac{C_{ugm}}{\left(\frac{PIB}{Nr.loc}\right)}\right)_{1975} x100 = 94 \text{, and } \left(\frac{C_{ugm}}{\left(\frac{PIB}{Nr.loc}\right)}\right)_{1992} x100 = 43$$

just like in Belgium and The Netherlands. But, in countries such as Spain, Finland, Italy, and Sweden, the evolution has a positive differential.

Table 5. The GDP higher education allocation (%): 1960-1995

Country	1960	1970	1980	1986	1993	1995	1998*
Austria	--	0.63	0.81	1.03	1.02	1.07	1.6
Belgium	0.34	0.77	1.04	0.95	0.97	1.16	1.1
Denmark	0.35	1.46	1.21	1.51	2.12	1.89	2.2
Switzerland	0.68**	0.74	0.93	0.87	1.14	1.10	1.1
Finland	0.30	0.62	1.04	1.02	2.41	1.98	2.0
France	0.28	0.55	0.39	0.43	0.80	0.97	1.0
Germany	0.51	0/71	0.71	0.85*	1.09	1.29	1.1
Ireland	--	0.68	1.16	1.24	1.38	1.47	1.1
Italy	--	0.38	0.40	0.40	0.71	0.77	0.8
U.K.	--	1.29	1.25	--	1.20***	1.27	1.1
Norway	0.42	0.72	0.98	0.90	2.34	2.16	2.0
Netherlands	0.87	1.59	2.17	1.62	1.77	1.64	1.4
Portugal	0.21	0.19	0.46	0.59	0.77	0.80	1.0
Spain	--	0.22	0.32	0.45	0.72	0.74	0.9
Sweden	0.42	1.13	0.84	0.88	1.33	2.16	2.1

Source: UNESCO Year Books. *1985; **1964; ***1992; *World Education Report 1998*
*Source: OECD, *Education at a Glance*, 2001,Table B4.1

Table 6. Public expenditure per student (as a percentage of the GDP per capita): The 1975-1995 evolution (The 1995 figures also illustrate the public expenditure for higher education/student as well as the expenditure/student originating in public sources)

Country	1975	1985	1992	1995	1995 USD/capita	1995 USD/student
Austria	52	38	34	32	288	8,605
Belgium	54	39	29	35	287	8,649
Denmark	65	49	44	55	565	16,440
Switzerland	70	47	44	48	447	19,502
Finland	29	39	55	46	408	9,567
France	31	30	22	24	242	5,998
Germany	43	34	29*	35	355	9,629
Ireland	61	52	41	38	216	5,590
Italy	28	23	35	23	146	4,375
U.K.	94	51	43	44	237	8,228
Norway	46	34	33	50	675	15,625
Netherlands	89	55	54	44	394	10,560
Portugal	48	50	42	25	78	2,435
Spain	20	--	23	18	101	2,444
Sweden	39	42	50	76	508	18,050

Source: IREDU Database 1997. *1990; *World Education Report* 1998.

1.2. REVISITING EUROPEAN HIGHER EDUCATION

Thus, European governments are faced with the following dilemma: on the one hand, they estimate that they cannot allocate a greater percentage of GDP to higher education, while, on the other hand, they are aware that the present limited investments might prove to be insufficient to sustain future development.

Is there any way out of this dilemma?

This attempt to answer the above-mentioned question relies upon the research carried out by several well-known specialists (Mora 1997), Eicher (1998), etc.). We shall start by making a few general remarks.

1.2.1. The Need to Continue Financing Higher Education Using Public Funds

There are two essential arguments to support the need to finance higher education using public funds: *effectiveness* and *equity*.

As far as effectiveness is concerned, higher education generates external benefits, which, among others, translate into higher wages for a higher education graduate. Another benefit worth mentioning is that people holding a higher professional qualification can contribute to enhancing the productivity of their fellow workers, helping them to adjust to technological changes, or to implement innovations.

So, if society as a whole benefits from the higher education system, it is only natural that society, in turn, should pay for part of the costs of the latter.

On the other hand, the state of imperfection and uncertainty affecting the higher education market offers another explanation for public intervention triggered by reasons of effectiveness. Financial benefits and future gains are uncertain, owing to academic drop-outs and to the difficulties of students in finding employment. Without public financing, students will be obliged to seek huge loans, while the demand for higher education will decrease below the optimum economic level.

To put the problem in a nutshell, it is necessary to maintain higher education financing out of public funds, as the market cannot meet the social requirements for the really optimum quantity and quality of higher education, because the market does not turn to full account the external benefits of higher education.

The equity-related arguments originate in the idea that higher education must be accessible to all individuals able to study, regardless of their economic resources. Consequently, the State must intervene and implement proper policies in order to provide equal opportunities for access to higher education. There are two main mechanisms to accomplish this objective: to reduce tuition costs below real costs and to promote scholarship programmes (or loan schemes) to allow less wealthy students to have access to academic training.

The first policy offers support to any individual enrolled in a higher education institution, irrespective of his or her economic situation. The second policy addresses low-income individuals specifically.

1.2.2. The Necessity to Have Alternative Financing Sources Separate from the Budget Allocations for Higher Education

As of late, developed countries have been faced with an increased demand for higher education, which is a consequence of several factors.

One of the most important factors is the high value an academic degree has on the labour market.

In the OECD countries, the participation rate of university graduates on the labour market is roughly higher than the average rate by 15 percent. At the same time, the unemployment rate for university graduates is 4.7 percent, as compared to the 8.5 percent average rate, while the salaries of university graduates are clearly higher than the salaries of individuals holding lower qualifications. Even if the percentage of university graduates absorbed by the labour market has clearly increased over the last few decades, it is still stable, having reached a level that we may call reasonable. For instance, in Spain, in the 1980's, the number of university graduates absorbed by the labour market increased from 850,000 to over 1,500,000. In spite of this spectacular growth, the salary gap between university graduates and individuals holding lower levels of qualification remained somewhat constant.

The benefits offered by the labour market are only some of the benefits obtained by the holders of an academic degree. It is difficult to quantify other economic and social benefits; still, everybody agrees that holders of an academic degree are not only more easily absorbed by the labour market and earn more money, but they also gain a higher social status, are more effective as far as consumption is concerned, enjoy a better state of health, adjust more rapidly to technological change, and also enjoy a series of cultural advantages.

Companies, too, benefit from higher education.

General education reduces the training period or the refresher courses one needs when new technologies are introduced.

The higher productivity that educated individuals possess (mainly university graduates) is transferred to the other employees and has a tremendous impact on the productivity of all the companies.

A large share of the external benefits generated by higher education graduates is absorbed not only by society at large (which accounts for financing from public funds), but also by the companies themselves.

On the other hand, companies are the ones to benefit directly from the scientific and technical progress largely accomplished in universities.

Consequently, the fact that companies are involved in financing higher education institutions by means of research contracts, service supply, and donations might be considered as a substantial compensation for the benefits that companies receive from higher education.

Economically speaking, it is obvious that private benefits are very high, both for individuals and companies. Likewise, it is generally accepted that there are huge social benefits as well, but they are difficult to quantify.

Therefore, the principle of "whoever has a benefit must pay" generates a combined financing system for higher education, which has both a private and a public component.

Even if this theoretical demonstration seems convincing, it is more difficult to answer the following question: what should be the share of each financing component within the overall higher education financing system? Economists do not have a clear answer to this question, but we can state that the present ratio is unfair in most countries (unfair meaning that private financing accounts for too small a share).

Table 7 backs this statement with data (the Table also contains available data for some non-European countries). Annex 6 B presents the relative proportions of public and private funds for educational institutions by level of education and year in OECD countries.

Table 7. Financing schemes for higher education in OECD countries: 1993-1998

	Public financing (% of total)-1993	Private financing (% of total)-1993	Public financing (% of total)-1998	Private financing (% of total)-1998
Austria	91	09	98.9	1.1
Denmark	62	38	97.2	2.8
Finland	78	22	na	na
France	75	25	85.5	14.5
Germany	90	10	92.1	7.9
Ireland	69	31	72.6	27.4
Iceland	56	44	97.7	2.3
Italy	89	11	74.7	25.3
U.K.	82	18	62.7	37.3
Netherlands	76	24	87.5	12.5
Portugal	80	20	93.2	7.7
Spain	73	27	72.1	27.9
Sweden	65	35	89.3	10.7
Turkey	89	11	94.2	5.8
Hungary	69	31	76.6	23.4
Canada	73	27	56.6	43.4
United States	50	50	46.8	53.2

Source: OECD, *Regards sur l'Education – Les indicateurs de l'OCDE*, 1996 (1993 Data). OECD, *Education at a Glance*, 2001, Table B3.2.

Compared to the situation described in Table 7 (1993), in 1997 one could observe important changes, especially owing to the trends they express (*cf.* Mora, 1997).

Thus, while in the United States private financing retained the same value, that is, 50 percent, in Canada it increased from 27 percent in 1993 to 35 percent in 1997, and in other countries, such as France, Germany, Ireland, Spain, Portugal and Italy, private financing in 1997 in between 15 percent and 20 percent of the total amount representing the financing of higher education.

For 1998, compared to 1997, the trend accelerated in the same direction. According to the OECD data, in the United States, private financing increased from 50 percent to 53.3 percent; in Canada, it moved from 35 percent in 1997 to 43.4 percent in 1998, while in United Kingdom, it attained 37.3 percent.

Traditionally, European countries have chosen to provide public funds generously for higher education, therefore trying to focus more on matters of fairness. Even if higher education availability and accessibility have reached a reasonable level, at least in Western Europe, it is still necessary to look into matters of effectiveness and equity.

The European countries have adopted various solutions to face financial restrictions, on one hand, and an increased number of students, on the other hand. In some countries, (the United Kingdom for instance), the solution adopted was to limit access to higher education. As a consequence, a good quality system resulted, but not a fair one.

Some other countries (France, Italy, Spain) have adopted the egalitarian policy of open doors, but quality has been put in jeopardy, because of insufficient resources.

In other countries (the Nordic countries, The Netherlands) quality and equity are better balanced, as higher education benefits from high financing.

So far as the Eastern European countries are concerned, the economic difficulties that these countries have been faced with have hampered the development of higher education, which cannot reach the same level as in the Western countries.

To conclude, one can say that the financial restrictions affecting European higher education have generated a situation in which neither equity nor quality has reached an appropriate level, at least in some countries.

The ineffectiveness of present higher education financing systems has important financial implications. For instance, in some countries, in which no tuition fees are changed or these fees are modest, students can enroll in a higher education institution and can even get some financial support without being constrained by a time limit.

Consequently, it takes students a longer time to graduate. This situation has become a cause of concern in countries such as Germany, Austria, Finland, and Spain, where measures are being envisaged to reduce the duration of studies.

The low costs of higher education in these countries generate system ineffectiveness as well as student lack of interest, as people are tempted not to appreciate something for which they do not pay and to waste assets that come free.

On the other hand, as clients, their claims about the products that they receive are more modest.

The very generous public subsidies for higher education may also be the cause of an excessive demand for higher education, very likely beyond the optimum economic level.

Moreover, the students as well benefit from these subsidies, because it is very easy for them to attend a higher education institute, if they belong to the middle or upper classes.

Still, the essential problem of the present European higher education financing system is the problem of equity. Therefore, one can state that the structure of the financing system has two main flaws:

i. First, the financing system is not fair so far as the sources of financing are concerned. As we have explained above, there are high private benefits to be obtained from higher education, for both individuals and companies. If we take into account the principle of "whoever benefits must pay", the ratio between the two financing sources (public and private) for higher education is unfair.

ii. Secondly, and this flaw is the most important one, the present financing system, based on modest tuition fees, is economically ineffective. To be very clear, the present higher education financing scheme transfers money from the poor classes to the rich classes, as the middle and the wealthy classes are the main beneficiaries of this financing system. Only in those countries in which the private participation rate in the higher education financing system is quite important (USA, Japan), do studies show that the financing system is effective.

1.3. ACCESS TO HIGHER EDUCATION

The available data on European higher education show a high level of attendance.

In Spain, for instance, (*cf.* Mora, 1997) the level of democratization as well as the extent to which various social and economic categories attend higher education institutions have significantly increased, even if children originating at the lower end of the income scale are underrepresented.

As was to be expected, low incomes and modest education levels of parents reduce the chances of children to attend a higher education institution. Nevertheless, when the factors are included in an econometric model, one can see that family income has a reduced influence on the decision to enroll in a university. This result only demonstrates that in order to provide all the individuals with equal opportunities to have access to a university, all the family and socially induced handicaps must be compensated. For this reason, education and the family environment are very important.

In those countries in which the state has attained a high level of development (like the Nordic countries, for instance) the family environment remains the essential factor determining the access of young people to higher education.

Research on Finland shows that the educational level of parents is the main factor in predicting the future educational performance of their children.

In Germany, 80 percent of civil servants want their children to have a secondary school graduation certificate, so as to allow them to gain admission to a higher education institute, while only 25 percent of workers want the same. If we refer to the education level of parents, we can see that 33 percent of the students in the old German states come from families in which the parents are university graduates, while in the new states, the figure is 52 percent.

Taking income into account, the number of students originating in the first upper quarter of the income scale is about 27 percent in the old German states and 36 percent in the new states. These results only confirm a real fact: the prerequisites necessary to insure equity in higher education should not be sought in university entrance procedures but in the material conditions of students. It is not possible to provide equal opportunities unless all the influences outside the school system disappear. Even though this issue is difficult, any possible solution must commence during the very early stages of education. Consequently, the economic efforts of the state must be focused on secondary education, if we want to provide equity for higher education.

1.4. THE NEED TO ACHIEVE A BETTER BALANCE BETWEEN PUBLIC FINANCING SOURCES AND FINANCING FROM SOURCES OUTSIDE THE STATE BUDGET

As has already been stated, one cannot really hope to see a sharp increase in state budget allocations destined to higher education, therefore the above-mentioned balance can only be reached if:

- the involvement of the private sector in financing higher education is increased;
- the internally generated revenues of universities are increased;

- the involvement of the private sector in financing higher education can be increased in the following ways:
- basic tuition fees are established in such a way as to account for a substantial amount of the costs;
- special fees are established for special services;
- the business community is stimulated to get involved in financing initial training (higher education) as well as continuous education.

For reasons of equity, the systems offering assistance to the students will have to be redesigned and amended depending on the evolution of the fee structure.

Stressing the need to achieve a better balance between public and private financing sources, UNESCO and the World Bank Task Force on Higher Education and Society concluded on the basis of comparative research and intensive discussion that "the financing of higher education does not need to be limited to the public purse. In fact, higher education can be provided and financed either entirely publicly, or entirely privately (including by non-governmental organizations), or by some combination of the two. Given that a purely public system is ill positioned to satisfy the demands for excellence and access, and that a purely private system does not adequately safeguard the public interest, hybrid systems deserve serious consideration. The range of possibilities is depicted in Table 8 (The World Bank and UNESCO, 2002).

Table 8. Assigning responsibility for higher education

	Provision	
Financing	Public	Private
Public	I. Free public universities and other institutions of higher education, relying on public funds to cover operating and capital expenditures.	II. Voucher systems under which the government pays a pre-set amount to whichever private schools students attend.
Private	III. Tuition, fees, and income from foundation grants, industry contracts, and privately generated endowment cover full costs.	

Source: The World Bank and UNESCO, 2002, p.79

> There are both advantages and disadvantages of provision and financing arrangements that fall into each of the three cells. Public financing and provision of higher education... is, in many ways, the traditional paradigm for most developing countries, and is treated extensively throughout this report.
>
> Private provision of higher education is attractive because it can lead to the delivery of more or better education at the same overall public cost. It can be coupled with public financing....as in the case of a voucher system in which the government awards funding to students who are free to enroll in different institutions (or gives the money directly to the institution after the student enrolls). In principle, this system gives universities a powerful incentive to provide quality education at a reasonable cost. However, vouchers are not a cure-all and are ineffective when competition is weak. In many countries reliable information about competing institutions is not available and students are therefore unable to make informed decisions, while in sparsely populated (especially rural) areas there are unlikely to be enough institutions to allow student choice (although distance learning may change this to a certain extent).
>
> Private financing is attractive because it reduces the burden on government budgets, and helps ensure that the costs of higher education are borne by those to whom the benefits accrue. Private financing... can be achieved in the context of public provision via tuition and fees, as well as grants and contracts from foundations and industry. In the case of private, not-for-profit institutions (and, in principle, public institutions as well), income from private endowment funds can also be used to support teaching and research activities (The World Bank and UNESCO, 2002, p.79).

Chapter 2

Funding Mechanisms for Universities: Financial Autonomy

2.1. A NECESSARY LEGAL FRAMEWORK

In order to design and implement a funding mechanism for universities, it is necessary to have a clear, coherent, and (to the best possible extant) stable legal framework. Any law regulating education (why not a law regulating higher education) should enshrine the following concepts:

- education as a national priority;
- academic autonomy;
- financial autonomy of universities

To put it briefly, any law must include:

- the principle of financial autonomy clearly formulated;
- a definition of the content of financial autonomy;
- a *delimitation of the general framework* within which financial autonomy can be operational;
- a *description of a methodology* destined to result in a modus operandi.

The most difficult task to accomplish is to indicate a *modus operandi*, namely a way to turn financial autonomy into a *concrete dimension* and to describe the *implementation mechanisms.*

Suppose that there is a desire to adjust all budget and accounting procedures to a financial management desired according to the principle of autonomy.

To accomplish this task, it might be of great interest to analyze what is going on in other countries, not necessarily to look for a model, but to search for information that might be a source of inspiration. Our approach follows two directions.

First of all, we shall consider other national academic systems, those in the United Kingdom, Germany, and France. We shall say nothing, one way or another, about ways to implement autonomy, except for the fact that there are both differences and resemblance among these systems, so to analyze them may be useful to our exercise.

Secondly, we shall analyze the international system, international regulations, to the extent to which they could endow the concept with an accurate material form, irrespective of whether such regulations are binding or not.

We can tackle the issue of financial autonomy by first considering the concept itself, and only second, the problems it generates.

i. Autonomy is considered to be the condition *sine qua non* for a university to exist. If autonomy were not respected, higher education institutions would only be instruments *endowed with personality* destined to carry out ministerial decisions referring to financial matter. Such a university would only be the manager of one (or several) public funds, the tool performing the accounting management of some lines in the state budget (or in any other body providing public funds).

International bodies (UNESCO, OECD, the European Union, the World Bank, the Development Banks) would refuse to consider such an institution as a university. Any intervention coming from any international financing organization would depend, first of all, on the abandonment of non-autonomous universities, wherever they still existed.

ii. Autonomy is fully achieved in such universities that freely dispose of sufficient discretionary resources to undertake their functions and also have the possibility to manage these resources according to their own norms.

iii. National systems grant various degrees of autonomy, which span the two extremes presented above.

iv. Analyzing the legal instruments by which autonomy is granted in various countries allows us to formulate a few general remarks:

- The most important national legal instruments enshrine the above-mentioned principle, and the law is what institutionalizes it; but such legal texts do not provide complete explanations on motives or modality;

- Speaking of *motives*, the essential motivation is the fact that autonomy is a *way to operate* that allows a university to fulfill its specific functions. Therefore, *financial autonomy is an instrument serving academic autonomy*. To be able to assess the real existence of this autonomy, one has to consider the financial authority of the university in matters of education and research; namely, one has to consider what allows an academic policy to exist, both in the way it operates and in the way it involves itself in investments. Thus, the fact that an essential share of the budget is destined to salary payments cannot be considered a sign of a lack of autonomy, as the autonomy is to be assessed against the remaining budget.
- And now about *modality:*
    - The implementation modality essentially depends on how the relationships between credit providers and the universities are organized, and it is often set by rather technical, not political, regulations (even if any technical decision is based on a political one);
    - If we compare academic or administrative autonomy to financial autonomy, the latter has two specific features:
        a. First, a university does not have relations with only one ministry, but with two government agencies – we call them agencies so as to avoid referring to one specific type of government structure; one of them has *educational* competence, while the other one has *financial* competence.
        b. Secondly, we have in mind the functional transposition of the already mentioned

structural specific feature: a university is subject to some constraints; for instance, it is bound to abide by the principles of public accounting or market rules, or it is bound to make use of the public treasury services, and to fit into the yearly budget framework.

- There are various forms to *enshrine autonomy*, and they generally refer to:
  - the right granted to universities to generate their own income;
  - a margin that allows a university to dispose of its "allocations", *i.e.*, to use them freely;
  - the authority to take decisions exercised by its own bodies;
  - the responsibility to manage cash returns and spending.

Generally speaking, we can conclude that legally enshrined autonomy is the result of looking for a balance between desires and constraints. It is a legitimate idea to protect the public money, the taxpayers' money; thus constraints are generated; however, as it is also legitimate to want more freedom granted to universities so that the latter can accomplish their missions. It is at this interface that the problem (or problems) related to autonomy can be located.

2.2. THE PROBLEM OF AUTONOMY

We believe that this problem must be considered at three different levels, one of which, the first to be tackled, seems to be frequently forgotten or neglected. We shall now review all the practices that appear as limitations imposed on autonomy, while refraining from any value judgments.

2.2.1. Autonomy and Budget Execution: Free Management

We include here whatever the executives of a university can immediately perceive and experience, whatever can be conceived of as an obstacle, often because there is no real understanding of the meaning of a constraint, but whenever this obstacle is not some kind of imposed bureaucratization. Remarks can be made on three issues:

- regulating credit opening;
- methods for carrying out budget operations;
- accounting rules and treasury management.

2.2.1.1. REGULATING CREDIT OPENING

Against the framework of autonomy, and taking into account the fact that the rules operating, when opening credits, are not neutral:

- Is the request to open a credit necessary or not?
- Should opening a credit have a prior justification or not?
- Should opening a credit be scheduled in time or not; should it be done along a yearly budget exercise (fiscal year) or not?
- Is there a possibility to cancel credits or not?

What is the method for carrying out budget operations?

- What is the nature of the rules governing cash returns?
- What is the nature of the rules referring to the way contracts are concluded?
- How is the way that expenditure is agreed upon and regulated – by authorization or by prior agreement?
- Is the winding up procedure simple or not? What about the implementation payment procedure?
- Is control *a priori* or *a posteriori*?

How about accounting rules and treasury management? This rubric refers to setting a balance between the requirements necessary to undertake sound management of public money and the flexibility necessary for university activity.

2.2.2. Autonomy and Budget Resources - The Possibility to Make Free Use of Resources

We can refer to two main categories of resources, namely, on one hand, that including *allocations*, *subsidies*, or *endowments* (these being the words currently used), that is, what is given by the provider of public funds, and, on the other hand, the university's *own resources*.

2.2.2.1. ALLOCATIONS

- Are they multiple or allocated as a lump sum?
- How large are the resources allocated?
- What is the operating margin that the university has to maintain to operate credit transfers?
- Are there one or several public donors?
- Is it necessary to file one request or several such requests in order to receive the allocation?
- Are there any contract-like agreements between the donor and the university referring to the management of the projects?
- What kind of assessment policy is in place for public projects?
- Are there any multi-annual plans?

2.2.2.2. THE UNIVERSITY'S OWN RESOURCES

The general trend dominating present-day national policies obliges universities to seek their own resources. The explanation of what may be interpreted as a major shift that took place in several countries is related to the fact that there are no public funds allocated to universities, or, at least, to the fact that there is a perception of a permanent gap between the needs and the ability to cover them. Against the background of a policy which is mainly determined by nation-wide academic policies rather than economic reasons, the idea that universities should seek their own resources is motivated by the need to stir an academic dynamics or/and generate competition among universities and the desire to reach a level of excellence.

But no system can neglect three ideas that justify the existence of some limitations:

i. a university is not a commercial enterprise, it has *missions and public responsibilities;*
ii. a university cannot go and obtain its own resources to the detriment of its *education and research missions*;
iii. there are several *ethical rules* originating in well-established academic traditions, or in the idea that their own resources are obtained by using public means.

The matter is one of setting up a series of academic policies capable of granting universities facilities and to encourage them, while preserving their missions and their endowments. Without going into detail, we may say that we are referring to activities or operations that may generate resources, such as:

- primary training courses in addition to any other studies that result in a national diploma;
- spontaneous or requested offer, in case of continuous education;
- services supplied based on contracts;
- auditing contracts;
- technical assistance;
- renting space;
- sales.

2.1.3. Autonomy and Accountability: Buffer Organizations

In order to assure the efficacy of the funding system, the state should provide a balance between autonomy and control. The Task Force on Higher Education and Society convened by the World Bank and UNESCO in 2002 stressed that the State must ensure that higher education institutions and the system as a whole, operate on the basis of financial services and fairness:

> Higher education institutions must be accountable to their sponsors, whether public or private. Accountability does not

> imply uncontrolled interference, but it does impose a requirement to periodically explain actions and have successes and failures examined in a transparent fashion. All interactions should occur within the context of agreed rights and responsibilities. Buffer mechanisms may be needed to help determine the appropriate balance between autonomy and accountability (The World Bank and UNESCO, 2002, p. 100).

Examining the limits of the financial autonomy of universities, practice has proven that an excessively tight State control of higher education might undermine the principles of good governance. For this reason, buffer organizations set between state and higher education institutions have appeared as a useful solution:

> Growing awareness of the disadvantages of state control has led many countries to adopt alternative models. State supervision aims at balancing the state's responsibility to protect and promote the public's interest with an individual institution's need for academic freedom and autonomy. So-called buffer bodies are important to achieving this balance. Buffer mechanisms generally consist of statutory bodies that include representatives of the government, institutions of higher education, the private sector, and other important stakeholders such as student organizations. Examples of buffer mechanisms would be:
>
> - councils of higher education that advise the government on the size, shape, and funding of higher education, and are also responsible for quality assurance, promotion mechanisms and accreditation;
> - research councils or agencies that fund and promote research;
> - professional councils that focus on specific areas of higher education;
> - governing councils (or boards of trustees).
>
> To be effective, these bodies require clear mandates, well established operating procedures, and full autonomy from both government and academia. For example, if a particular body is to allocate research funds based on competitive applications from research universities, it must adhere strictly and transparently to a widely accepted set of procedures in soliciting

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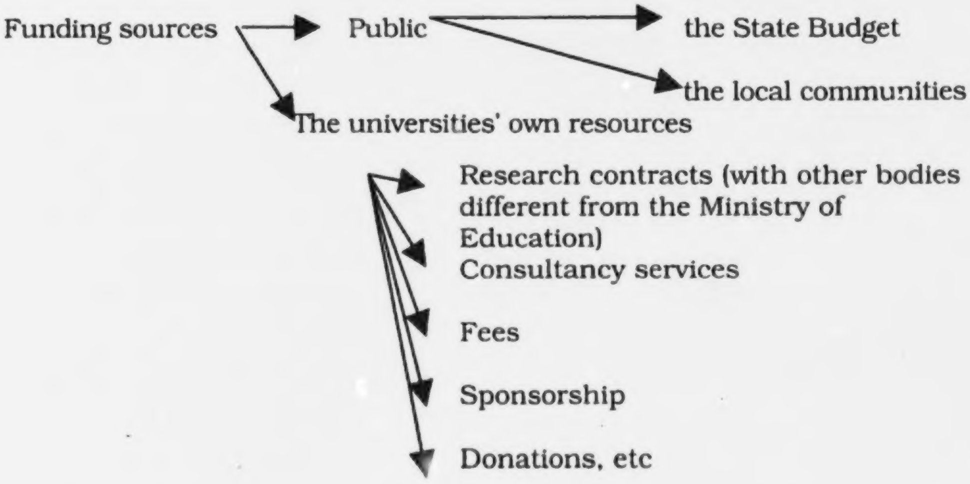
and reviewing applications. It must also have full control over the resources to be allocated and have the authority and tools to sanction parties who do not abide by the established procedures (World Bank and UNESCO, 2002, p. 85).

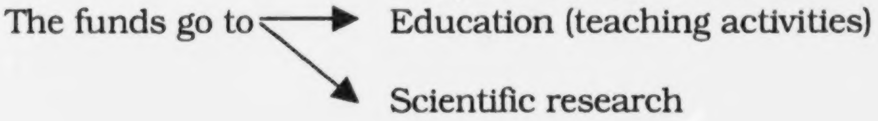
2.3. FUNDING SOURCES

Here are the sources that we have in mind.


Funding sources
Public
the State Budget
the local communities
The universities' own resources
Research contracts (with other bodies different from the Ministry of Education)
Consultancy services
Fees
Sponsorship
Donations, etc

2.4. MAIN SPENDING AREAS FOR UNIVERSITY FUNDS

There are two main areas: a) for education (teaching activities)
b) for scientific research.


The funds go to
Education (teaching activities)
Scientific research

When we speak of education (teaching activities) we only have in mind "initial teaching activities in higher education".

We should also point out that in a number of higher education systems, teaching and fundamental research activities are closely linked to each other a style which is also reflected in the funding mechanism.

We shall now attempt answer the following questions:

- What is the method used to establish the allocation for a university from the State Budget for its teaching activities;
- What happens (or what should happen) at a university once the allocation for teaching activities has been received (internal management).

2.5. FUNDING MECHANISMS

The approaches for the allocation of public funds vary from "negotiations-based approaches" to a "formula-based approach" and "performance-based funding mechanisms".

The Dutch Ministry of Education, Culture and Science commissioned a comparative study regarding the funding mechanisms in ten higher education systems to the Center for Higher Education Policy Studies (CHEPS), This study, undertaken by Kaiser *et al.*, at the end of 2000, relied on the following research issue: "How are public resources allocated among higher education institutions in order to achieve both governmental as well as institutional goals. Questions and debates regarding the level of public funding of higher education are beyond the scope of this report" (p. 21).

Another study, carried by Ben Jongbloed (2001), was focused on the part remaining beyond the goal of the above-mentioned report, offering a complete image of the field. More precisely, his research question was: " to what extent (is) the public subsidy allocated to a higher education institution... based on input elements (*i.e.*, indicators that refer to the resources used and/or activities carried out by the higher education institutions), or output elements (*i.e.*, indicators that refer to the institution's performance in terms of teaching and research)"? (p. 2)

For the description of funding mechanisms, the main elements presented as follows are those used by Kaiser *et al.*, 2001. Additional elements with regard to the input-output approaches were taken from Jongbloed's study (2001). Concerning the system of vouchers as a particular type of demand-side funding mechanism, a competent analysis was carried out by Jongbloed and Koelman (2001).

2.5.1. Input – and Output – Oriented Funding

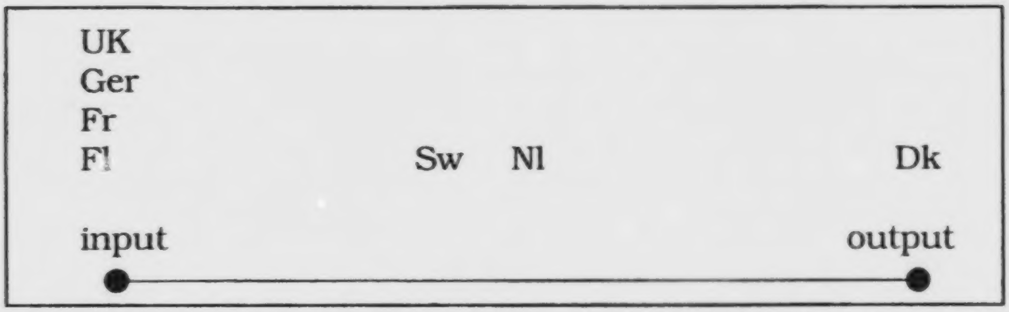
According to Kaiser *et al.* (2000),

> Input and output refer to the criteria that are used to allocate public funds to teaching activities. Traditionally, the public funding of higher education is input oriented. Criteria like the number of students enrolled or square meters of floor surface are frequently used as input criteria. In the 1980s, in many countries, efficiency became the leading principle in discussions regarding funds, owing to the economically bad situations and the political urge to cut back on the public budget. It is assumed that input-based funding only comprises a few incentives for an efficient operation of higher education. Introducing output criteria in the funding formula, like the number of graduates or the number of study-credits obtained, was and still is seen as a way to increase the efficiency of production (Kaiser *et al.*, 2000, p. 23).

Countries like Germany, France, and the United Kingdom only use input criteria in allocating public funds to teaching activities.

> In the Netherlands and Sweden, funding mechanisms are based, for a substantial part, on output criteria in addition to some input criteria. In the Dutch funding formula for universities, the number of diplomas awarded determines half of the teaching budget., 13 percent of the budget being based on the number of new entrants (input). The funding formula for Dutch *hogescholen* comprises a "dynamic demand factor" that is used to weigh the number of students enrolled. Into that factor, the number of degrees awarded and the time of completion are incorporated. In the Swedish formula, the number of credits accumulated in an institution and the number of students enrolled determine the teaching budget for that institution. The part of output criteria is slightly less than 50 percent.
>
> Finally, the Danish funding mechanism is a system that is fully output-oriented. The study points achieved by students are the only criterion for the allocation of public teaching funds (Kaiser *et al.*, 2000, p. 23).

Figure 1. Positioning of countries by funding base

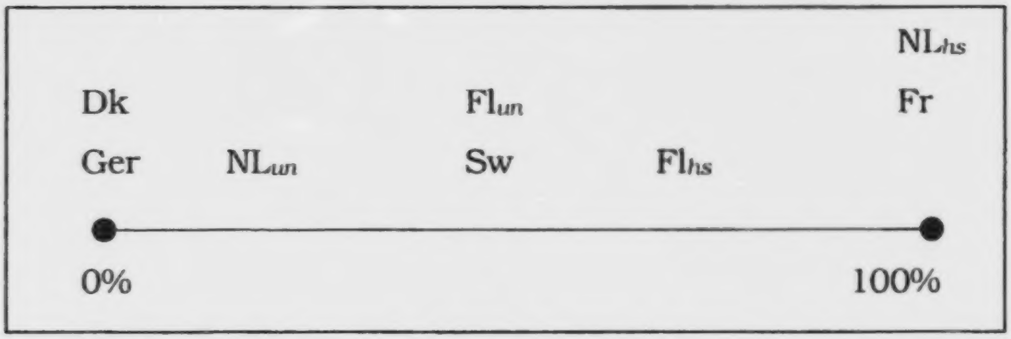


Dk: Denmark; Fl: Flanders; Fr: France; Ger: Germany; Nl: The Netherlands; Sw: Sweden; UK: United Kingdom

Source: Kaiser *et al.*, 2000.

As mentioned above, input criteria do not refer solely to enrollment. Physical criteria like floor surface, and fixed amounts are considered to be input criteria. For purposes of analysis, it is also relevant to describe the role enrollment plays in funding mechanisms. The figure below provides an overview (Kaiser *et al.*, 2000, p. 24).

Figure 2. Positioning of countries by the use of enrollment size as a factor in the determination of funding



Nl$_{un}$: Netherlands universities; NL$_{hs}$: Netherlands hogescholen
Source: Kaiser *et al.*, 2000.

In Germany and Denmark, enrollment is not a criterion in the funding formula. In Dutch universities, the number of new entrants determines around 13 percent of total funding. In Flemish universities and in Sweden, around half of the funding is enrollment driven. In Flemish *hogescholen*, around 80 percent of public funding is Enrollment driven, whereas in the remaining countries, funding is completely enrollment driven. In the case of the Dutch *hogescholen*, we have to note that the number of students enrolled is weighted by the time to complete (an output criterion). In the case of the United Kingdom, it is not possible to determine the extent of enrollment-drivenness. In principle, funding is historically determined (the budget of the previous year). To determine whether or not that amount is still adequate, a standard-budget is calculated, which is fully enrollment-driven. Since we do not know to what extent standard budgets deviate from historically determined budgets and since a 5 percent bandwidth is used (within which no compensation for fluctuation in Enrollment is made) it is not possible to position the United Kingdom. Given the bandwidth and the changes in enrollment, we expect the UK position to be close to that of Dutch universities (Kaiser *et al.*, 2000, p. 24).

In all countries, the criteria for allocation (be they input or output) are weighted. The weights vary according to disciplinary group, level of programme, and type of institution, leading to a number of different rates or scales used. In table 2.1, the number of rates used are presented (Kaiser *et al.*, 2000, p. 25).

Table 9. Number of scales or rates used in the funding of teaching activities (initial programmes)

Denmark	12
Germany	n.a.
France	31
The Netherlands	7
United Kingdom	4
Flanders	3
Sweden	12

2.5.2. Formula-Based Funding

In some countries, the funding formula is a distributive instrument. The outcomes of the funding formula are used to determine what proportion of the total public funds available is allocated to what institution. The total amount of public funds is determined in other (political) arenas. In Denmark, public funding is open-ended. The results of the funding formula determine the amount available to teaching activities. However, in case the growth of the budget is expected to be too large, the scales will be adjusted. In Germany, no formula is used (Kaiser *et al.*, 2000, p. 25)

Jongbloed's research (2001) validated in a considerable measure the conclusions of the Kaiser *et al.* study:

> Belgium, New Zealand, and the UK are examples of countries where the core funds for research are mainly distributed on the basis of a formula. In Belgium and New Zealand, the amounts are driven by student numbers (the funding of teaching and research is an integrated affair). The UK is the only country in our sample where the allocations for research are fully determined on the basis of a funding formula that takes into account the quality and the volume of research, but does not consider either historical allocations or student load. Overlooking the eleven countries we conclude that the funding of teaching and research is a mix of formulas, history, and negotiation. For the teaching part, often the emphasis will lie on formulas, while for the research part most countries will have multiple funding approaches (Jongbloed, 2001, p. 6).

With regard to the estimation of the advantages of funding formula Jongbloed concluded:

> The major advantage of funding formulae is that, because they use objective criteria, they provide a clear insight in the distribution of funds among higher education institutions. Therefore, they facilitate comparisons between institutions, thus reducing the lobbying by institutions (Jongbloed, 2001, p. 4).

He further states that:

> The reasons may lie in the belief that, if performance is to be understood in terms of increasing diversity and responsiveness in the system to the needs of students, Enrollment-based formulae may be worthwhile. If an individual university's grant depends on the number of students that have chosen to enroll for its courses, it is actually the students voting with their feet that determine the university's resources. In other words: "money follows the student" (Jongbloed, 2001, p. 15).

The funding formula is currently often used among countries, "in particular where the funding of teaching is concerned" (see Table 10).

Table 10. The use of funding formulae for determining the core funding of universities

Country	Do formulae underlie the teaching budget?	Do formulae underlie the research budget?
Australia	Yes	Partly
Belgium (Flanders)	Yes	Yes
Denmark	Yes	No
France	Yes	No
Germany	No	No
Japan	Yes	Yes
Netherlands	Yes	Partly
New Zealand	Yes	Yes
Sweden	Yes	No
United Kingdom	Yes	Yes
United States	Yes	No

Of the countries surveyed, Germany is the only one in which no funding formulae are used for determining the university budgets. However, there is reason to believe that current trends towards more decentralization and lump sum budgeting will encourage their development and use in many of the German Länder.

As far as research is concerned, we see more variety in the use of formulae. We list a "No" in Table 10, if the core funds for research are allocated through a mechanism that makes funds depend to a large extent on previous years' funding. One may refer to this as incremental funding. This is the case for Denmark, Germany, and Sweden. For France and the US, we also listed a No, because most of the core funding for research is allocated on the basis of contracts signed between universities and the funding authorities (ministries, respectively research organizations/councils) responsible for research.

In other countries, at least a part of the operating grants for research is allocated on the basis of a formula. In the Netherlands, almost 13 percent of the universities' research funds are related to the relative number of PhD degrees awarded. However, the major part (some 80 percent of the

> research budget), so far has been a component that has remained largely unaltered and that has its roots in history (Jongbloed, 2001, p. 6)

Jongbloed, moreover, identifies a number of conditions that should be fulfilled by an Enrollments-based formula funding system in order for it to function properly:

> First, there would have to be no restrictions on the amount of students the university is allowed to enroll. As soon as there are government-imposed limits on the number of funded student places (*e.g.*, Australia, UK, Denmark, and Sweden) the intended effects of 'students voting with their feet' will be diminished.
> Second, in order to be able to make well informed choices, students will have to have easy access to reliable information on the programs and courses provided by the higher education institutions.
> Third, national authorities and education providers should not be allowed to create unjustified obstacles to prevent students from taking parts of their degree or programs in different universities.
> Fourth, student support systems will need to be flexible so as to enable students to do parts of their education and training at different locations and points in time.
> Fifth, and finally, the student's private contribution to the cost of their training have to be sufficiently real for them to make a wise choice of program (Jongbloed, 2001, p. 15)

2.5.3. Performance-Oriented Funding

In a performance-oriented university funding mechanism, classic examples of output indicators incorporated in the formula or the budget negotiations are: the number of credits accumulated by students, the number of degrees awarded, the number of research publications, or the patents and licenses issued. These are the outputs that universities are able to control – at least to a large extent.

Current debate over output indicators, that lie a bit further away from the sphere of control of universities, take into consideration the relative success of graduates on the labor market. Discussions revolve around the number of graduates working in employment related to their training ("graduate placement"), or the success of universities in generating additional funding from contract activities (in the field of teaching as well as research).

Jongbloed's typology is presented in Table 11 as an overview of the use made of performance information in the funding mechanisms that underlie the core budgets for teaching and research (excluding research council funds).

Table 11. Performance orientation in the funding mechanisms for universities

Country	Degree of performance orientation in the allocation of core funds for:	
	Teaching	Research
Australia	–	–/+
Belgium (Flanders)	–	–
Denmark	+	–/+
France	–	–/+
Germany	– to –/+	–
Japan	–	–/+
Netherlands	+/–	–/+
New Zealand	–	–
Sweden	+/–	–
United Kingdom	–	+
United States	– to –/+	– to –/+

Legend: + : fully output-oriented
+/– : mix of output- and input-orientation, but primarily output-oriented
–/+ : mix of output- and input-orientation, but primarily input-oriented
– : fully input-oriented

Source: Jongbloed, 2001, p. 8.

The performance information can take several forms. There is a choice of output indicators that are currently in use in the countries included in our survey, such as:

- number of credits accumulated by students;
- number of graduates (*i.e.*, degrees awarded);
- research publications (number and/or quality thereof);
- number of doctoral theses.

Even more important is the issue of the proportion of the budget that is determined by direct reference to performance indicators.

> However, this proportion and, therefore, any quantitative measure of the degree of performance orientation, are difficult to determine. So, for comparing the different countries' funding mechanisms, one will have to resort to a qualitative judgement. Table 11 gives the outcome of our assessment of the funding models for teaching and research. An explanation of the scores is given below (Jongbloed, 2001, p. 8).
>
> One of the main conclusions to be drawn from this table is that, with a few exceptions, one cannot speak of a high degree of performance orientation in the countries surveyed here. This is a fact for teaching as well as research. This may come as a bit of a surprise considering the attention paid to accountability and quality issues in public debates on university funding. With respect to the core budgets for teaching, Denmark seems to be the only country that employs an example of output-oriented funding in our sample. As regards the funding for research, the UK shows the strongest performance orientation. However, one should also include the relative importance of research councils (see Table 1) before drawing any firm conclusions on performance-orientation in research funding. Below, we will take a closer look at the mechanisms in place and explain the respective country scores in Table 3 (Jongbloed, 2001, p. 8).

Jongbloed's final conclusion was that the role for output indicators in the funding mechanisms is still relatively small for the eleven countries included in his study, despite the increased attention for issues of accountability and value for (public) money. As an alternative, many governments prefer to apply a somewhat soft approach to performance enhancement, relying on other mechanisms instead. In many cases this approach is characterized by having universities generate an increasing amount of data on different aspects of their activities. This information will allow the various stakeholders of universities to form their opinions and, for instance, enable (prospective) students to make better-informed choices.

2.5.4. Demand-Side and Supply-Side Funding

"The distinction between demand-side versus supply-side funding is a second dimension that can be used to describe funding mechanisms".

The criterion determining whether a funding mechanism can be characterized as demand-side or supply-side refers to the question, who receives the resources from the public authorities to fund teaching activities.

- In the case of supply-side funding, the higher education institutions get the money directly from the public authorities.
- In the case of demand-side funding, the funds are provided to the demanding party, which are the students.

Discussions about demand-driven funding in higher education can be put into the perspective of discussions regarding the introduction and expansion of market type mechanisms in the public sector. One of the starting points in these discussions is the assumption that by providing the client (the student) with a limited amount of public resources, (s)he will be aware of the scarcity of the public funds (s)he receives and that (s)he will behave as a critical consumer, using the resources in a more efficient way (Kaiser *et al.*, 2000, p. 25).

2.5.4.1. STUDENT SUPPORT SYSTEMS AS DEMAND-SIDE FUNDING

In the literature, public student support systems are often characterized as a type of demand-side funding. It is argued that public student support is a flow of public resources that end up with the suppliers of educational services through the students. The resources concerned are public grants, part of which students may use to pay tuition fees (Kaiser *et al.*, 2000, p. 26).

Using this line of reasoning, Kaiser *et al.* (2000) determined the extent of this type of demand-side funding in seven European countries by comparing the level of public grants and the level of tuition fees. In Table 12, average grants are presented. Next to that, the level of tuition fees at public higher education institutions are presented. In the final column, an assessment of the extent of demand-side funding by student support is given. The basic criterion for this was the extent to which tuition fees may be covered by public grants (Kaiser *et al.*, 2000, p. 26)

In general, in countries without tuition fees, we cannot speak of indirect demand driven funding. This is the case in Denmark, Germany, and Sweden. In countries with low tuition fees, like Belgium (Flanders) and France, we can only indicate a low level of indirect demand-driven funding. The only country in which tuition fees are at a considerable level and students on average could pay these tuition fees from the public grant subsidies they receive is the Netherlands. In the UK, with even more substantial levels of tuition fees, the average grants given to students fall far below the level of grants given to Dutch students. This implies only a moderate or low level of indirect demand-driven funding in these countries (Kaiser *et al.*, 2000, p. 27).

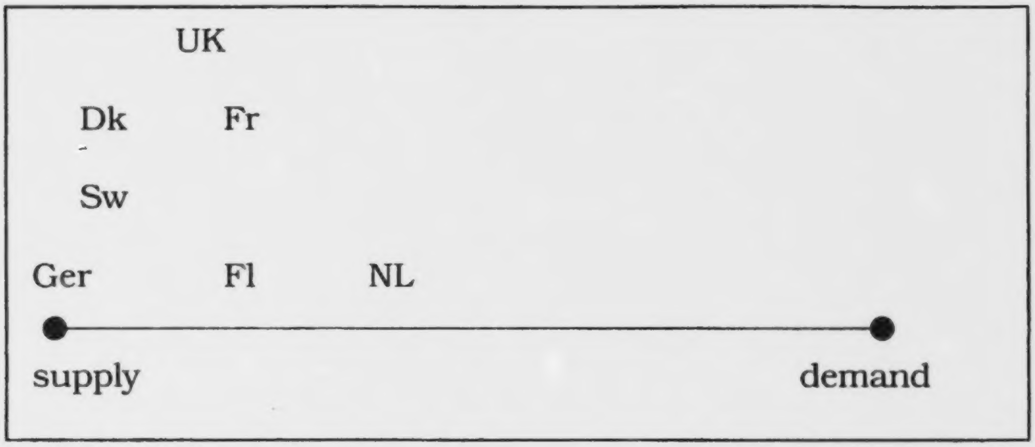
Table 12. Annual average grant per student, average tuition fees (1999-2001, in Euros) and the extent of demand-side funding through student support

Country	Student grants	Tuition fees	Extent of demand-side funding through student support
Denmark	3750	0	No
Flanders	342	100-600	Low
France	494	200-850	Low
Germany	374	0	No
Netherlands	1750	1300	Considerable
Sweden	2150	0	No
United Kingdom	700	1700	Low

Source: CHEPS calculations, 2001; Kaiser *et al.*, 2000.

All in all, we can conclude that indirect demand-driven funding through tuition fees and student grants is the highest in the Netherlands compared to the other countries involved in the study. However, even if we take the Dutch position, we must say that tuition levels on average only cover about 20 per cent of public expenses on higher education teaching programmes (Kaiser *et al.*, 2000, p. 27).

Figure 3. The positioning of funding mechanisms by the extent of demand-side funding through student support



Source: Kaiser *et al.*, 2000.

2.5.4.2. VOUCHERS FOR HIGHER EDUCATION AS A PARTICULAR TYPE OF DEMAND-SIDE FUNDING

According to the demand-side funding principle, the funds are provided to the demanding party, which is represented by the students. They receive money (or vouchers) from the public authorities and they buy the teaching activities they want (Kaiser *et al.*, 2000, p. 25).

> From literature ..., it is well known that *vouchers* are often propagated as a very powerful means of demand-side financing. Students (or prospective students) would receive a bundle of vouchers (or entitlements) to buy educational services from higher education institutions (HEIs). The government is supplying the vouchers and HEIs no longer receive direct government funding (subsidies) as the funding is supplied through the students. To secure their funding, HEIs therefore will have to compete for students and consequently are believed to shift their focus from satisfying government bureaucrats towards the needs of their customers. Thus, a voucher scheme contains incentives to strengthen student choice. In a voucher scheme, the providers of higher education are forced to be responsive to the needs and preferences of their customers (*i.e.*, students, business, etc.). Vouchers therefore, constitute a

> market-oriented type of funding higher education. In light of the developments towards mass individualization and life long learning, vouchers may be a promising system for the funding of post secondary education" (Jongbloed and Koelman, 2000, p. 5).
>
> Many governments are putting increasing pressure on the providers of post-secondary education to become more efficient and more responsive to client demands. One of the ways in which the government can try to achieve this is to introduce a more market-oriented type of funding mechanism in which providers would have to compete for public funds and would have to respond more strongly to the demands of their customers. The introduction of vouchers has been suggested, both in the research literature as well as in the policy field, as a promising alternative to the traditional supplier-oriented system of allocating government directly to the providers of education.
>
> Although we have identified some differences in opinion on what actually constitutes a voucher, we have described the voucher mechanism as a way of funding education through the demand side.
>
> This means that clients (students, pupils) actually receive a voucher, *i.e.*, a coupon that represents a specified value in terms of consumption of education, that can be used up in a flexible way for "buying education" from a range of education providers that meet specific quality standards. The holder of the voucher him-/herself would have to make an assessment of where he/she receives the best education in exchange of the voucher, while the provider would feel an incentive to look after students (Jongbloed and Koelman, 2000, p. 28).

The Netherlands designed a small scale experiment regarding vouchers in 2001. The Kaiser *et al.* study (2000) mentions that after a long period of discussion (almost 15 years) the first voucher experiment in the Netherlands started as of 1 January 2001.

> The experiment is a co-operative effort of 10 institutions for higher professional education (HBO's) and 6 medium and small-scale business organizations (MKB). Concerning the education program, students can take courses from the 10 participating HBO's, increasing the competition among these institutions. The branch-organizations hope to strengthen their

> relationship with HE, to combat the problem of a tight labor market and to use the knowledge of students for innovations. As such they offer serious practical periods (jobs) for students wishing to follow a dual learning and working structure (Kaiser *et al.*, 2000, p. 26).

In 2000, Jongbloed and Koelman conducted an in-depth analysis of the advantages and limitations of vouchers as a way of demand-side financing. They found that for higher education, voucher schemes are rare. Also practical experiences with vouchers are very rare.

A theoretical model of vouchers in higher education considered by specialists as the most elaborated and consistent plan is the Levin Model:

> The Levin Model contains five key elements:
>
> 1. Students receive vouchers (entitlements). Through their Enrollment pattern they directly determine the amount of funding that higher education institutions (HEIs) will [receive]. If a student spends a voucher to attend a specific programme at a HEI of his/her choice, the government is obliged to pay a pre-determined amount of money to the institution that offers the programme.
> 2. A prerequisite for a HEI to be eligible for governmental funding is that it must be accredited. Not only regular institutions, however, are considered for accreditation. In principle, every supplier of higher education courses that meet specific quality standards can qualify for accreditation. This means that new suppliers get a possibility to enter the market. Furthermore, by not restricting accreditation and governmental funding to the traditional suppliers of higher education, Levin's voucher scheme can also include on-the-job training programmes.
> 3. The voucher is not necessarily a grant, but may also consist of a mixture of grant and loan. The composition of the voucher, in this respect, may vary with the type of programme and student characteristics. For example, for studies that generate relative large externalities, the vouchers contain a large grant component. Moreover, based on equity considerations, it could be considered to give vouchers with a larger grant-component to students from low-income families. Another policy option could be to

endow students with lower initial ability with more vouchers than the other students. Finally, it is important to note that the possibility of a loans component in the voucher scheme creates the option to combine a voucher scheme with a loan scheme (*e.g.*, where repayments of loans are based on the income earned by the borrower).

4. Vouchers retain their real value during the entire lifetime of the owner. This makes it possible to combine a voucher scheme with the policy goal of lifelong learning, which is becoming more and more important in a knowledge-based economy.
5. Information plays an important role in a market system, such as a voucher scheme. Therefore, Levin is aware of the need to provide accurate information to demanders and providers of higher education and proposes to establish a special agency to collect and disseminate information about institutions and courses in the higher education system. Potential students should have quick access to relevant and accurate information about programmes, course contents, costs, quality of teachers, labour-market position of graduates, *et cetera*. At the same time, suppliers of higher education programmes should be well-informed about Enrollment patterns and new labour-market requirements. The same agency could play the role of administrator, bookkeeper, controller, and collector of the vouchers (Jongbloed and Koelman, 2000, p. 17).

The final conclusion of Jongbloed and Koelman (2000) in the above mentioned study was that:

> Given the goals of increasing competition between providers, strengthening student choice, and facilitating flexible, lifelong learning routes, a system of vouchers seems like an attractive way of funding post-compulsory education. However, the same goals may be realized by using other instruments, while reducing the degree of central planning in the system. This would have the benefit of keeping a large part of the traditional schemes of allocating grants intact while avoiding the negative effects of vouchers, such as the large administrative workload, the need for government regulation (especially with respect to income redistribution) as well as the risk that the vouchers lead to additional claims on the public purse (Jongbloed and Koelman, 2000, p. 31).

2.6. A POSSIBLE MODEL FOR ALLOCATING CORE FUNDS TO UNIVERSITIES (A FORMULA TO DETERMINE THE CORE FINANCING FOR UNIVERSITIES IN ROMANIA)

We believe that a detailed presentation of this formula would be useful mainly for those countries that are looking for a financing model for higher education.

We shall present both the beneficial and the detrimental elements. The simple examples that appear in the presentation may make it possible to understand the technical aspects related to the implementation of the formula, but they might also be a source for strategic directions imposed by the varying impacts that several parameters may have in establishing the core financing.

The main principle governing the state budget allocations for Romanian universities is the principle of a global annual funding. The lump sum that a university receives from the state budget has two components:

i. core financing;
ii. additional financing

Core financing is meant to cover all staff costs and material expenses (without general overhauls). This sum is allocated under the formula.

The *additional financing* is that share of the global financing originating in the state budget which is not core financing.

It includes the following funds:

- a fund to cover the subsidies for the student accommodations and food;
- a fund for equipment, investment, and general overhaul;
- a fund for academic scientific research.

Unlike the core financing which is allocated under the formula, additional funding can only be obtained based on competitive criteria (except for the subsidies for student accommodations and food, which is mainly established as based on one important parameter – the number of students living in student residence halls).

2.6.1. *Establishing Core Financing – Generalities*

The principle that establishes the core financing that is allocated to each university is still the following: "the resources follow the student". The main parameters that quantify this principle are: the number of equivalent students per field of study, (adjusting) cost coefficients by field, the lump sum (approved by the state budget law) that established national core financing. The core financing per university is established by a formula that links the above-mentioned parameters. We shall describe this formula, and it will be an algorithm. Understanding the formula (which is not highly sophisticated) will allow each university to establish its core financing. It is a way to establish a permanent control (which has already been instituted) over the calculations made by the National Council for Higher Education Financing, namely a fundamental dialogue between the National Council and the universities, so as to provide the total transparency of the procedures employed and also of the results after implementing these procedures. We shall present some simple examples so as to clarify specific points that have created confusion, for instance the fact that the procedure to establish the number of equivalent students by field of study (let us say, a technical field) is in no way related to the cost coefficient corresponding to that field, but is only related to the number of physical students and to the way they are distributed over various types of academic course programmes existing for that field of study (full-time courses, evening classes, full-time PhD courses, advanced studies, etc).

2.6.2. *Establishing the Core Financing for a University*

Step 1. Establishing the number of equivalent students by field of study

a) Let the domain be Di;
b) Within domain Di there are types of academic studies Fk;
c) For each type of academic study Fk, 1<=k<=n we associate the equivalence coefficient, the weight pk (the

ratio between the cost of the students attending the type of academic study Fk and the cost of the students attending a full-time course (F1);

d) Let us calculate the average number of students by domain Di, type of academic study Fk:

$$N_{ik} = \frac{N_{ik}^{(1)} \cdot 7 + N_{ik}^{(2)} \cdot 3}{10}$$

where:

$N^{(1)}_{ik}$ = the number of students by domain Di, type of academic study Fk, over the period of time between 1 January – 31 July of a calendar year.

$N^{(2)}_{ik}$ = the number of students by domain Di, types of academic study Fk, over the period of time between 1 October 1 – 31 December of a calendar year.

e) the number of equivalent students by domain Di at the university U is:

$$N_{iU}^{e} = \sum_{k=1}^{n} N_{ik} p_k$$

where n is the total number of types of academic studies.

Step 2. The number of equivalent students per country by domain Di is:

$$N_{i}^{c} = \sum_{U} N_{iU}^{e}$$

Step 3. Calculating the unit budget allocation (for the number of equivalent students for the domain of humanities):

a) We establish the cost indicators per domain (see the list of domains and cost indicators for the year 2001):

$$c_i = \frac{\text{cost of equivalent students by domain } D_i}{\text{cost of equivalent students by domain of humanities}}$$

b) The unit budget allocation (for the domain of social sciences and humanities) is:

$$a = \frac{S}{\sum_{D_i} c_i N_i^e}$$

where S is the budget of the Ministry of Education and Research allocated to higher education core financing.

c) The unit budget allocation per domain is:

$$a_i = a \cdot c_i$$

Step 4. The core financing allocated to university U for the domain Di is:

$$(FB)_{Ui} = N_{iU}^{e} \cdot a_i$$

Step 5. The core financing allocated to university U is established by the formula below:

$$(FB)_U = \sum_i (FB)_{U,i}$$

Types of academic studies with related equivalence coefficients for 2001

No	Type of academic studies (F_k)	Equivalence coefficient
1.	Full-time courses	1.00
2.	Colleges (short term courses)	1.00
3.	Advanced studies + Master's Degree courses	3.00
4.	Advanced studies + Master's Degree courses in an international foreign language (English, French, or German)	6.00
5.	Specialized full-time courses in an international foreign language (English, French, or German)	2.00
6.	Specialized full-time courses in Hungarian	1.50
7.	Specialized full-time courses in a foreign language (other than English, French, German, and Hungarian)	2.00
8.	Courses organized outside the town where the university is located	1.25
9.	Courses organized within the framework of university extensions (abroad)	2.50
10.	Part-time courses	0.35
11.	Evening courses	0.80
12.	Extra mural courses	0.15
13.	PhD (full-time courses)	4.00
14.	PhD (Extra mural courses)	1.00
15.	Master's degree in medicine	2.10
16.	Granting of grades for secondary school teachers	0.40
17.	Students in preparatory year (for foreign students)	1.25
18.	Pedagogical seminar	0.12

Types of academic studies with related cost indicators for 2002

No	Field of study (Di)	Cost Indicators (c_i)
I.	Technical	1.650
II.	Architecture	2.000
III.	Agronomy	1.690
IV.	Sciences	1.650
V.	Mathematics and applied mathematics	1.280
VI.	Social sciences and humanities	1.000
VII.	Psychology	1.280
VIII.	Medicine	1.900
IX.	Economics	1.000
X.	Theater and musical art	5.374
XI.	Film	9.000
XII.	Music and arts	3.000
XIII.	Sports	1.860

2.6.3. Comments and Examples to Establish the Core Financing

To put it in a nutshell, the algorithm described to determine the number of equivalent students at University U may be presented as follows:

- Generally speaking, in a university U there are several domains Di, 1≤i≤n. For instance, a medicine and pharmacy university has only one domain (called medicine in the table above). But most universities are complex structures, including several domains (for instance, the social sciences, the humanities, the sciences, mathematics and applied mathematics, etc). The number of equivalent students in university U is the sum total of equivalent students all the domains existing in university U.
- To determine the equivalent number of students by domain Di one takes into account only the types of studies for domain Di and the number of students existing in each type of studies during the periods between 1 January – 31 July and 1 October – 31 December respectively of the calendar year.
- The equivalence coefficient pk related to a specific type of studies Fk means the following: the ratio between the cost per student attending the type of studies Fk and the cost per student attending the full-time course F_1, the latter being used as a unit.

For instance, when we say that for F_3 (advanced studies) (see the table above presenting the types of academic studies with related equivalence coefficients for 2001) the equivalence coefficient is $p_3=3$, we say that a student enrolled in advanced studies is three times more expensive than a student enrolled in a full-time course programme. We would like to stress the fact that this is just a qualitative remark: an advanced studies student is three times more expensive than a full-time course student irrespective of the domain. Thus, if two different domains in one and the same university (let us say the technical domain and the social sciences and humanities one), or even in two different universities had the same number of students for the same type of academic studies during the two periods between 1 January - 31 July and 1 October - 31 December, the number of equivalent students for the same domain would be identical.

Below one can see a simple example of the calculation of the number of equivalent students for a university U that has only two domains D1 and D2. To do that we have to go through steps 1 and 2 of the algorithm described above (See Table 13a).

Let us suppose we have to divide sum S=3,500,000,000 ROL representing the core financing for the two domains. Now we have to use the cost coefficients (adjustment coefficients) for each domain. According to the algorithm, under Step 3, a cost coefficient - ci - corresponds to a domain Di, and the cost of an equivalent student belonging to the domain of social sciences and humanities, taken as a unit. For instance, when we read that the cost coefficient for the technical domain is 1.650 (see the list above with the cost coefficients for 2001), we say that an equivalent student in the technical domain is 1.65 times more expensive than a student from the social sciences and humanities domain.

Thus, if we suppose that domains D1 and D2 for which we have calculated the number of equivalent students are the social sciences and humanities one (cost coefficient=1) and respectively, the technical one (cost coefficient=1.65), then the sum S=3,500,000,000 ROL for the two domains is illustrated in Table 13b (which sums up the table in which the number of equivalent students per domain has been calculated).

EXAMPLE

Let us suppose we have to divide the sum, S=3,500,000,000 ROL, by two domains D1=humanities and D2=technical, having the structure presented in the table below.

As could be expected, the use of the formula to establish the core financing allocated to each university generated some comments.

We can say that the structure of core financing (≈80 percent staff costs and ≈20 percent material expenses) as well as the procedure to determine the number of equivalent students per domain were immediately accepted by the academic community. It was more difficult to refine the cost coefficients, a process that will continue. The need to refine the cost coefficients is triggered by the very dynamic development of education, its pluridisciplinarity, high flexibility when defining professional qualifications, multiculturalism, etc.

Nevertheless, we can state that at present a balance has been struck between scarce resources, on the one hand, and student flows, on the other hand, as well the share allocated to each domain, market demands, etc. This balance is rather unstable, as very slight disturbances affecting a domain that has a major share make the whole system explode. *For this reason, no significant changes are to be expected so far as the coefficients are concerned, unless we experience a significant growth in the core financing for higher education as a whole.*

Table 13a. Calculation of the number of equivalent students at a university (U)

Type of academic studies	Equivalence coefficient	Domains 1			Domains 2		
		Number of students (Jan-July)	Number of students (Oct-Dec)	Average of students	Number of students (Jan-July)	Number of students (Oct-Dec)	Average of students
Full-time courses	1	100	80		250	230	
Evening courses	0,8	25	20		-	-	-
Extra mural courses	1	-	-	-	60	50	
Master's degree courses	3	20	20		-	-	-
PhD (full-time courses)	3	-	-		20	20	
PhD (extra mural courses)	1	5	5		-	-	
Number of equivalent students							

Table 13b. Calculation of the allocation sum in Domains 1 and 2 of University (U)

Type of academic studies	Equivalence coefficient	Domains 1			Domains 2		
		Number of students (Jan-July)	Number of students (Oct-Dec)	Average of students	Number of students (Jan-July)	Number of students (Oct-Dec)	Average of students
Full-time courses	1	100	80		250	230	
Evening courses	0,8	25	20		-	-	-
Extra mural courses	1	-	-	-	60	50	
Master's degree courses	3	20	20		-	-	-
PHD (full-time courses)	3	-	-		20	20	
PHD (extra mural courses)	1	5	5		-	-	
Number of equivalent students							
Cost Indicators		1			1.65		
The unit allocation per equivalent student/domain							
The average unit allocation per equivalent student							
Core funding							

To better understand the philosophy of the formula and to assist universities in their future endeavours, we shall make an elementary analysis of the impact that various factors have (factors such as the number of equivalent students, cost coefficients, the sum S which represents the core financing approved by the state budget for the whole of higher education), on the core financing allocated to each university.

Here is a general (and essential) remark: universities do not have to be concerned with the growth of core financing for the whole university, but with increasing the allocation per equivalent student. The core financing for the whole university may grow as a result of an increased number of students, but the allocation per equivalent student (at least for some domains) may decrease. Therefore, the university does not win. A decreased allocation per equivalent student will not increase the quality of his or her training.

Here is another general remark: the sum S to be divided is constant, so the value of the core financing for a specific university will be increased only if the core financing for another university is decreased. It is quite easy to understand: let us say sum S has been divided according to the formula between two universities and the sums corresponding to each university are S1 and S2, namely $S = S1+S2$.

Let us say we want to start with $e>0$ sum S1 and to make it $(S1 + \varepsilon)$. Thus, we have to subtract ε from the sum S1 so as to get:

$$S = (S1 + \varepsilon) + (S2 - \varepsilon)$$

The first university won, while the second lost.

We shall discuss some examples to illustrate the impact various factors have on the formula that establishes core financing.

EXAMPLE 1

Let us suppose we have to divide $S = 1000$ (conventional units) between two homogeneous universities, the former having the number of equivalent $N_1^e = 100$ and the cost coefficient $c_1 = 1$, while the latter has $N_2^e = 400$ and $c_2 = 2$. So, according to the formula, the unit allocation per equivalent student at university U1 is:

$$a_1 = \frac{c_1 \quad S}{N_1^e \quad c_1 + N_2^e \quad c_2} = \frac{1 \quad 1000}{100 \quad 1 + 400 \quad 2} = \frac{1000}{900} = 1,(1)$$

while the core financing allocated to university U1 is:

$$S_1 = N_1^e \quad a_1 = 100 \quad 1,(1) \quad 111,1$$

The allocation per equivalent student at university U2 is:

$$a_2 = \frac{c_2 \quad S}{N_1^e \quad c_1 + N_2^e \quad c_2} = \frac{4 \quad 1000}{100 \quad 2 + 400 \quad 4} = \frac{4000}{1800} = 2,(2)$$

While the core financing allocated to university U2 is:

$$S_2 = N_2^e \cdot a_2 = 400 \cdot 2,(2) \approx 888,9 \text{ and } S_1 + S_2 = 1000$$

EXAMPLE 2

Let us preserve the data $S = 1000$, $N_1^e = 100$, $N_2^e = 400$, but we double the cost coefficients $c_1 = 2$, $c_2 = 4$. Then, the unit allocation per equivalent student at university U1 is:

$$a_1 = \frac{c_1 \cdot S}{N_1^e \cdot c_1 + N_2^e \cdot c_2} = \frac{2 \cdot 1000}{100 \cdot 2 + 400 \cdot 4} = \frac{2000}{1800} = 1,(1)$$

while the core financing allocated to university U1 is:

$$S_1 = N_1^e \cdot a_1 = 100 \cdot 1,(1) \approx 111,1$$

The allocation per equivalent student at university U2 is:

$$a_2 = \frac{c_2 \cdot S}{N_1^e \cdot c_1 + N_2^e \cdot c_2} = \frac{4 \cdot 1000}{100 \cdot 2 + 400 \cdot 4} = \frac{4000}{1800} = 2,(2)$$

While the core financing allocated to university U2 is:

$$S_2 = N_2^e \cdot a_2 = 400 \cdot 2,(2) \approx 888,9 \text{ and } S_1 + S_2 = 1000$$

Nothing has happened: the universities get exactly the same sums as in the first example, although the cost coefficients for each university have doubled.

EXAMPLE 3

$S = 1000$ (conventional units)

$N_1^e = 100 \quad c_1 = 2$

$N_2^e = 400 \quad c_2 = 3$

Then the unit allocation per equivalent student at university U1 is:

$$a_1 = \frac{c_1 \cdot S}{N_1^e \cdot c_1 + N_2^e \cdot c_2} = \frac{2 \cdot 1000}{100 \cdot 2 + 400 \cdot 3} = \frac{2000}{1400} = 1,429$$

while the core financing allocated to university U1 is:

$$S_1 = N_1^e \cdot a_1 = 100 \cdot 1,429 = 142,9$$

The allocation per equivalent student at university U2 is:

$$a_2 = \frac{c_2 \cdot S}{N_1^e \cdot c_1 + N_2^e \cdot c_2} = \frac{3 \cdot 1000}{100 \cdot 2 + 400 \cdot 3} = \frac{3000}{1400} = 2,143$$

While the core financing allocated to university U2 is:

$$S_2 = N_2^e \cdot a_2 = 400 \cdot 2{,}143 = 857{,}1 \text{ and } S_1 + S_2 = 1000$$

The former university has won, while the latter has lost, even though its cost coefficient has been increased from 2 to 3!

The examples above obviously lead to the following question: what do we mean by improving the core financing?

First, it means increasing the budgetary allocation per equivalent student in the domain of the humanities as well as in the domain of economics:

$$a = \frac{S}{\sum_{D_i} c_i N_i^e}$$

As the budget allocation per equivalent student per any domain Di, different from the two domains mentioned above is:

$$a_i = a \cdot c_i\ ,\ c_i > 1$$

we shall get an increase in the budgetary allocation per equivalent student per any domain Di, depending on the value of the multiplication factor, Ci.

How can the budgetary allocation per equivalent student be increased? The answer is simple: increasing S and decreasing $\sum c_i N_i^e$. But cost coefficients cannot fluctuate very much (ideally they should remain the same for a very long period of time). A rough answer (which does not take into account the way students are spread across various types of academic studies) may give a quite good but approximate idea of this phenomenon. The answer is that *the number of equivalent students should decrease.* This view is difficult to accept given that we know what position Romania occupies in Europe according to a criterion that reads as follows: "number of students per 1000 inhabitants".

Therefore, we inevitably reach the answer: for a *to increase, S has to increase*. But for S to increase, the education budget has to increase, namely the famous "4 percent out of GDP". And finally, if the 4 percent is maintained, the final conclusion is clear: *it is not possible to increase the core financing unless GDP increases.*

Any issue related to increases in GDP is beyond the competence of the author; so he cannot take the analysis any further. One may reply that it is not necessary to use so many words in order to reach certain final conclusions. Our answer will embrace two aspects: first, to demonstrate is more than to convince; second, we hope that the examples considered here will prevent many requests from reaching the National Council for Higher Education Financing, as, more often than not, all these requests end in: "Won't you increase our coefficients?"

On the other hand, the National Council will always be ready to conduct an open and sincere dialogue with all universities, will strengthen their cooperation with the National Rectors Conference, and will try to make use of all suggestions aimed at improving the activity of the Council.

REMARK 1

The method by which to establish core financing that has been described above triggers the following adverse effects:

Some universities tend to increase their student enrollments rapidly.

Indeed, it was rapidly understood that an increased number of equivalent students triggers an increase in core funding. But, it is only possible to have an increased number of equivalent students if the number of "physical" students is increased. This change can be made mainly by increasing the annual enrollment rate, which makes it necessary to have control over the number of students enrolled in the first year who are subsidized by the state budget. For this reason, we suggest below an algorithm to establish the first year enrollment rate for budget-subsidized students.

PREMISES

Let us suppose that the date is 1 January 2002. The *fiscal year* spans the 1 January 2002 - 31 December 2002 period, while the 2002 - 2003 academic year begins on 1 October 2002 and ends on 31 July 2003. The enrollment for the 2002-2003 academic year takes place on 1 October 2002.

Necessary data: Let us suppose that the following is known:

a) The higher education budget for 2002 (Bug) (We refer to the global higher education budget), namely:

Bug = (Core financing) + (Additional financing)

b) Global unit cost per equivalent student **(C_{ug})**

$$C_{ug} = \frac{Bug}{N^e}$$

where N^e is the number of equivalent students at national level for the 2002 fiscal year.

As we can see, the global unit cost per equivalent student means the average sum of money spent for an equivalent student during a specific fiscal year. The global unit cost per equivalent student can be established as based on historical data (the figure for the preceding year, for instance) associated with certain political decisions; for instance, the impact of the inflation rate or a political decision to increase the global unit cost.

A comment is necessary here: because the number of equivalent students at national level is

and Bug is a fixed value, an increased value of C_{ug} will trigger a decreased number of equivalent students, while a decreased value of C_{ug} triggers an increased number of equivalent students. But the value of the C_{ug} parameter cannot be decreased below a specific limit, beyond which it is difficult to imagine that the younger generations will receive any decent education and training. In other words, it is difficult (if not impossible) to imagine that any young professional could be trained with very little money.

For this reason, a rational approach to the idea of enrollment would be the following: If we know the higher education budget (for instance, a specific percentage of GNP) as well as the real costs per domain of academic studies (for instance, technical, medical, etc) to be able to train well-educated specialists, we can establish the number of students per domain of academic studies that can be subsidized from the state budget .

To contextualize, we can also present another approach that could trigger major difficulties or even block the system. *This approach is to be avoided.*

- Based on the principle of academic autonomy, each university proposes its own enrollment figure, for each academic domain that exists within that university.
- The respective Ministry (for instance, the Ministry for Education and Research) does not undertake a major intervention to adjust the enrollment figures proposed by the universities (sometimes, because of an unjustified feeling of fear that academic autonomy might be infringed). Consequently, the national enrollment figure is the sum total of the enrollment figures proposed by universities.
- Still, the higher education budget has already been fixed (as we said it is a specific percentage of GNP).
- If we calculate the allocation per student (by dividing the higher education budget by the number of equivalent students that results following the procedure explained above), we can see that it is much smaller than the real cost.

The difficulties that result are easy to imagine, ranging from a decline in the training of future professionals, to difficulties in paying the salaries of the teaching staff (depending on how large the gap is between the real costs and the allocations).

c) the number of students per domain of academic studies (for instance, technical, medical, humanities) and per types of academic studies (for instance full-time courses, evening courses, extramural courses, etc.) enrolled on 1 January, 2002 for the following years of studies:

1,2	(if it is a short-term three year course)
1,2,3	(if it is a full-time four-year course)
1,2,3,4	(if is a five-year course)
1,2,3,4,5	(if it is a six-year course)

These are the students (there may be some dropouts) to be found enrolled in academic course programmes for the 2002-2003 academic year as of 1 October 2002 (for instance, students who were enrolled in the first year on 1 January 2002 will be enrolled in the second year on 1 October 2002).

d) the number of students attending advanced studies, Master's Degree programmes, and doctoral programs who will go on studying beyond 1 October 2002.

e) the (estimated) job offer per domain of academic studies for the years 2005 (graduates of three-year courses) and 2006, 2007, 2008 respectively (graduates of four-year, five-year, and six-year courses)

PROCEDURE

Step 1: We calculate

$$N^{e}_{2002} = \frac{(Bug)_{2002}}{(C_{ug})_{2002}}$$

which represents the average number of equivalent students which can be subsidized from the state budget in 2002.

Step 2: We transform the number of physical students supplied by letters c) and d) into equivalent students and we obtain the residual number of students (   ). This number is to be found in the total number of equivalent students for the period of time between 1 October 2002 – 31 December 2002.

Step 3: We calculate

$$N^{e}_{1,2002} = N^{e}_{2002} - N^{e}_{r,2002}$$

and we obtain the number of equivalent students which may be represented by the number of students who will enroll in the first year.

Step 4: We allocate the number of equivalent students destined for the first year to all the domains of academic studies. The criterion used to allocate them to the domains is the job offer for professionals in the respective domain at the time when students enrolled in the first year graduate.
We note: S = the job offer corresponding to domain Di

$S = \sum_{i=1}^{n} S_i$ = the total demand for professionals for all domains (let us say "n")

Then (the number of equivalent students corresponding to the first year for domain Di, for the 2002-2003 academic year) shall be supplied by the following formula:

$$N^{e}_{1,2002} = N^{e}_{2002} - N^{e}_{r,2002}$$

namely,

$$N^{e}_{i,I,2002} = \frac{S_i}{S} N^{e}_{I,2002}$$

Step 5. Allocation of the enrollment figure per universities.

Now has to be divided per universities. Here are the criteria:

- the demands of universities;
- how compatible these demands are with strategic development plans;
- the extent to which the graduates of that university have been absorbed by the labour market.

It is important to note the importance of last criterion. Universities are not interested in having excessively large enrollment figures, as such figures will narrow the gap between the share of already employed graduates and the total number of graduates, thus decreasing the figure for the year to come.

Finally, let us suppose that university U knows it can enroll as first year students for the domain Si a number of students who represents , the average number of equivalent students per year per country. The university will divide this number according to the formula below:

$$N^{e}_{iU} = \sum N_{ik} p_k$$

(See above the calculation for the equivalent number of students), and will use its own criteria and estimations to establish the number of "physical" students N_{ik} for the domain "i", type of academic study "k". The university is free to follow its own policy and to establish a smaller number of students for a full-time course and a larger number of students for evening or extra mural courses.

REMARK 2

The algorithm starts from the formula that calculates the number of equivalent students at the level of the country:

$$N^{c} = \frac{Bug}{C_{ug}}$$

If there is such a thing as a political option referring to education, then intervention is in order. The global unit cost has both a historical and a normative dimension. The historical discussion shows how it developed over these last years, so extrapolation from the current year for the year to come is a guiding estimation. The normative estimation may mean the following: the financing of higher education over the last years has occurred in condition of crisis.

The global unit cost is an indicator that says something about the quality of the education process. Excessively high costs must be attentively examined, but we should equally beware of low costs. It is hard to imagine any quality education process carried out at low cost (we do not even have to demonstrate it; it is something that everybody can understand). Having said that, the prospective unit global cost that bears the history that we have described can be increased as a result of a political decision. Increasing this cost will trigger a decrease in the number of equivalent students, and, as a consequence of the algorithm described above, a cut in the first year enrollment figure.

We have reached a very important point on this approach.

Let us suppose that a university, based on the autonomy it enjoys, proposes a much larger figure for the first year enrollment than the figure resulting from the algorithm above, and, moreover, totally abandons the entrance examination system. The university is free to do that. But it has to observe two conditions:

- It should not forget that the budget core financing which will be included in the global financing will be calculated according to the above-mentioned algorithm.
- There is unit cost per student (corresponding to each academic domain) that has to be observed if the wish is to provide a decent kind of training. In this undertaking, the university is free to use funds beyond the formula that governs higher education core financing; for instance, the funds obtained from the budget after meeting the performance criteria, as well as the funds that represent additional income, but all of the above should be undertaken within a legal framework that allows such movements of funds.

REMARK 3

All the formulae that calculate unit costs include staff costs as well. Staff costs are often designed so as to cover all the positions on the payroll. On the other hand, it is clear that, theoretically speaking, the number of positions and the salary fund must be calculated taking the following into account:

- annual number of hours per student, depending on the duration of the studies and the domain;
- the number of students;
- the annual number of hours per teaching position.

Now, the number of students that the state can subsidize is established using the above-mentioned algorithm. The annual number of hours per teaching position is clear once the teaching loads have been established. What is variable is the annual number of hours per student. There are two possibilities: this number is either established by the Ministry, and so we get the number of teaching positions that the state can subsidize, or, in keeping with the idea that universities can decide for themselves, they are free to establish it. The problem arises when the annual number of hours per student is larger than the number estimated by the Ministry. This means increasing the number of teaching positions. The problem has only one solution: the state provides staff costs according to its own estimates and the universities must be able to supply the difference.

REMARK 4

What about the higher education cost efficiency that the state subsidizes? We shall present a viewpoint related to an essential axis for higher education policy: *duration of studies.* We believe that the future strategic idea should be the following: cutting down on long-term course programmes and developing, to a greater extent, all postgraduate studies (advanced studies, doctoral studies, postgraduate academic studies, expert studies, and refresher courses).

Obviously, there will be major exceptions: for instance, it is hard to image shorter medical studies, or engineering studies, or even architectural studies. Let us refine this statement a bit. Generally speaking, after competing the third year of studies, the knowledge that a student acquires is very sophisticated, therefore hardly accessible. Most of the students are "lost" as against these difficulties. It is a waste of money both for them and for the state that subsidizes a major share of the costs that these students should be carried along for another two years before they graduate, while their interest in the knowledge imparted to them continues to decrease (this being generated by its reduced accessibility). It is much more natural that, over a period of four years, they should acquire such decent knowledge and a coherent system that will be of use to them in their employment, while the best of them will be offered the opportunity to continue studying, at a higher level, enrolling in advanced study courses or doctoral programmes.

This idea may be developed even further: general knowledge courses are indispensable in a university, but scientific performance is generally attained through specialization courses. The good general education of as many students as possible is an important indicator of the value of a university, but an even more important indicator is the creation of creators or at least of open minds, ready to perceive a novelty or to improve on existing knowledge. Such objectives can be attained by optional, Master's, and Doctoral courses.

As for doctoral studies, full-time doctoral courses need to be extended, even if there are increased additional costs. An important issue is the practical training of students. We do not need to come up with many arguments. Still, there is one argument that seems essential: the importance that the developed countries are giving to the practical training of future engineers. This training is almost entirely paid for by the companies in which it takes place. There is even a saying going round: If you cannot find a company in which your students may have their practical training, you will not find any company to hire your graduates.

A distinction has to be made between training costs and student support costs. This distinction is absolutely necessary in case a radical decision should be taken: everything pertaining to student life (scholarships, residence halls, student restaurants, cultural activities) being placed under the responsibility of a specialized body having subsidiaries all over the country. This body might follow the pattern of its French counterpart (CNOUS). In this respect, see the reports by Nica Panaite, *Higher Education Organization and Financing in France: Possible Directions for Romanian Reform* (1997) and George Dincă, *The Higher Education Financing System in France* (1997).

Even if no such decision is taken, it is useful to keep track separately of the two types of expenses for each university. It will help in maintaining a balance between support costs and training costs. Nevertheless, it is true that currently, a large share of the material expenditure goes to support to the detriment of education, which is still the essential justification for the financing of a university.

2.7. A POSSIBLE MODEL FOR THE ALLOCATION OF FUNDS FOR SCIENTIFIC RESEARCH

We are trying to develop a financing model for the scientific research being carried out by universities, a model that should be designed to award funds on a competitive base.

First, we have to clearly define scientific research. It is absolutely necessary to have a very clear definition, before being able to assess it as based of performance criteria. In Annex A of a document titled "Conduct of Exercise: RAE Manager's Report", May 1997, the definition of research reads as follows:

2.7.1. Definition of Research

> Research is to be understood as an original investigation undertaken in order to gain knowledge and understanding. It includes work of direct relevance to the needs of commerce and industry, as well as to the public and voluntary sectors; scholarship; the invention and generation of ideas, images, performances, and artifacts including design, where these lead to new or substantially improved insights; and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products, and processes, including design and construction. It includes routine testing and analysis of materials, components, and processes, *e.g.*, for the maintenance of national standards, as distinct from the development of new analytical techniques. It also excludes the development of teaching materials that do not embody original research.

Even if the definition above may give rise to discussions and remarks, it still contains an important idea: the difference between what has to be done in research and any "service supply" that includes routine measurements and testing which should be clearly delimited from new analytical techniques.

To illustrate the idea expressed above, the Director of the Higher School of Physics and Industrial Chemistry in Paris gave the following example: "If I am offered a huge sum of money to measure the phosphorous concentration in the waters of the Seine, I'll refuse, but if the proposal is that I should discover a new method to make this measurement, I'll accept".

Of course, in their attempt to generate their own revenues, Romanian universities may agree to supply such services, but they are not to be construed as research, and will not be assessed based on the future performance criteria. What follows are two models for the financing of scientific research: the British and the French. Each one can offer suggestions to be adopted in a specific model. Here is a brief presentation based on the British model for 1997-1998.

The whole research "front" is divided into sixty-nine "assessment units" (see Annex A): Anatomy, Biochemistry, Theoretical Mathematics, Applied Mathematics, etc. The sixty-nine assessment units are classified into three bands: A, B, and C to which corresponding cost weights are associated as follows:

Bands of assessment units	Cost weights
A	1.7
B	1.3
C	1

Band A includes research that needs a professional laboratory and presupposes high costs. Band B units are of average cost and require experimental facilities or practical studies. Band C includes the remaining units.

For instance, clinical dentistry and Biochemistry are classified under band A, psychology under band B, and law under band C. Band A includes twenty-nine out of the forty-four units that have been assessed in the United Kingdom.

Every four years, scientific research is assessed based on what is called the "Research Assessment Exercise", which locates the subunits classified under an assessment unit on one of the positions along a "quality scale" assigning it a corresponding quality weight:

1	0
2	0
3b	1
3a	1.5
4	2.25
5	3.375
5*	4.05

The weight attached to each quality step is determined by HEFCE and reflects the opinion on how selective the system allocating research funds should be. The wider the weight scale, the more selective the funds distributions will be.

We can see that by moving from one quality step to another quality step (starting at 3b), the quality weight increased by 50 percent as compared to the preceding step:

$$1.5 = 1 + \frac{1}{2} \cdot 1$$

$$2.25 = 1 + \frac{1}{2} \cdot 1.5$$

$$3.75 = 1 + \frac{1}{2} \cdot 2.25$$

With a 20 percent bonus for 5*:

$$4.05 = 3.375 + \frac{1}{2} \cdot 3.375$$

The 20 percent bonus granted to 5* as compared to 5 is meant to support some excellent research centers. The institutions intending to receive this bonus are invited to describe in their policies the ways in which they use the funds so as to preserve their position within the world research class. Here is the description that HEFCE documents offer to explain the principles that locate the units along the quality scale power above.

The quality scale:

- 5* QR that equates to attainable levels of international excellence in more than half of the subdomains and

- 5* QR that equates to attainable levels of international excellence in more than half of the subdomains and attainable levels of national excellence in all the other remaining subdomains;
- 5: QR that equates to attainable levels of international excellence in some subdomains and attainable levels of national excellence in all the other remaining subdomains;
- 4: QR that equates to attainable levels of national excellence in all subdomains , showing some evidence of international excellence, or attainable levels of international excellence in some subdomains, and at least attainable levels of national excellence in more than half of the subdomains;
- 3a: QR that equates to attainable levels of national excellence in more than two thirds of the subdomains or attainable levels of international excellence in a few subdomains, and at least attainable levels of national excellence in some other subdomains so that they should make up a majority;
- 3b: QR that equates to attainable levels of national excellence in most subdomains;
- 2: QR that equates to attainable levels of national excellence in no more than half of the subdomains;
- 1: QR that equates to attainable levels of national excellence or none, or virtually none of the subdomains

NOTES:

The concept of "subdomain" of research activity is applicable to the work accomplished by individual researchers, and also by groups of researchers. A subdomain is a coherent subset of assessment units and it can refer either to the research undertaken by a team on a submission (for instance, research into atomic physics within the submission of the physics department) or to the very different interests of an individual (for instance, an individual who studies both cosmology and nuclear physics).

"Attainable levels of superiority" refer to an absolute quality standard for each domain of activity and must be independent of the research conditions existing in each department.

The adopted international criterion refers to a level of superiority that is to be attained in a specific domain, even if there may not be any current examples of having attained such an international level. If there are no current examples, we shall adopt standards that are similar to those used in related research domains. The same approach is to be adopted for studies that have a local scope that does not meet standards known as "national" or "international".

Units that are located in categories 1 or 2 along the quality scale do not receive QR funds.

Units located from 3b upwards benefit from QR funds, but a new parameter has to be calculated: the research volume.

Essentially, the "eligible research volume" refers to the "number of equivalent research active individuals". The number is calculated considering the research active staff (according to RAE) which is assigned weights, as illustrated in Table 14.

Table 14. Establishment of "eligible research volume" per number of research active staff

Full-time research active individuals	1
Research assistants	0.1
PhD students (2nd and 3rd year students)	0.15
Research funds generated by sponsorship (Charitable incomes)	F1
	F2 respectively
The average salary calculated for the staff involved in the research	S_m

If a team has ten fulltime research active members, five research assistants, ten PhD students, F1 = 200,000, F2 = 50,000, $S_m = 25,000$, then the eligible research volume is:

$$10\cdot 1+5\cdot 0.1+10\cdot 0.15+\frac{0.25}{25000}\cdot\frac{20000+50000}{2}=10+0.5+1.5+1.25$$

A great deal can be said about this formula. The first remark to be made refers to the contribution these "charitable incomes" have when calculating the eligible research volume (in our example, it is quite close to the contributions of the PhD students). For the system as a whole, the contributions to building up research volume are:

69 percent fulltime research active individuals;
18 percent PhD students;
5 percent research assistants;
8 percent charitable incomes;

A second remark refers to PhD students the only impacts of whom lie in their numbers. And everybody knows that the number of PhD students is very limited when we speak of important professors and top domains of excellence. In these precise cases, their contribution will be small relation to setting up the eligible volume of research.

Suppose we have all the data mentioned above, the following is a way to establish the QR financing for research:

Table 15. Method for establishing QR financing for research

Research unit	Eligible research volume	Cost weight	Quality indicator	Financing sum depending on quality
U1	V1	1.7	3.375	
U2	V2	1.3	4.05	
U3	V3	1	2.25	
U4	V4	1.3	1.5	
U5	V5	1.3	2.25	

with

S is the sum total that has to be divided.

To conclude, let us say that RAE (the research assessment exercise) which was adopted in 1996 and resulted in the procedure that is described above spanned the June 1993 to December 1996 period. Some 2,898 submissions were made for 192 higher education institutions, including 55,893 research active individuals who wanted to be tested.

Chapter 3

Financial Management at University Level

When speaking of financial management in universities, we are referring to three fundamental aspects:

- *i.* efficient use of budgeted funds
- *ii.* capacity of universities to generate their own incomes
- *iii.* ability to design a clear and realistic perspective of development for a university (strategic plans).

3.1. THE EFFICIENT USE OF BUDGETED FUNDS – THEIR INTERNAL DISTRIBUTION AMONG DEPARTMENTS

In Denmark, Flanders, France, Netherlands, Sweden, and the United Kingdom, "public funds for teaching activities are provided to higher education institutions as a lump sum. Higher education institutions are therefore, within very broad and general limits, free to spend the public funds as they like (Kaiser *et al.*, 2000, p. 29). In Germany experiments are going on regarding the introduction of lump sums. The lump sum for the French higher education institutions is relative small. The largest part of the expenditure (staff) is administrated by the central government.

> Institutions do not distribute public funds at random; they also use some kind of allocation-model. However, they are no national regulations or rules regarding these internal allocation models.(...)
> It is expected that there will be differences in the internal allocation models used in higher education institution in one country, but the internal models will probably not deviate too much from the national model. Although it might be expected that the degree of professionalism of the management of higher education institutions is related to the development of different internal allocation models, there is no empirical evidence for this relationship (Kaiser *et al.*, 2000, p. 29).

We are proposing below a possible model for the internal distribution of expenditures for personnel (Mihai, 2000).

The West University of Timişoara used this model in 2001 (We notice that, for Romanian universities, the block grant coresponding to a financial year is structured as 80 percent core funding and 20 percent complementary funding).

In core funding, approximately 80 percent of the total of funds are allocated for staff expenditures and approximately 20 percent for maintenance. Therefore, a model for the internal distribution of staff expenditures represents a model of distribution for an important part of the university budget.

Indeed, if we denominate as follows:

= university global funds received from the State budget

= the quantum of core funding

= staff expenditures

we have

$$F_{BU} = \frac{80}{100} \mathrm{Bug}_U = \frac{4}{5} \mathrm{Bug}_U$$

$$D_{Sal} = \frac{80}{100} F_{BU} = \frac{4}{5}\left(\frac{4}{5} \mathrm{Bug}_U\right) = \frac{16}{25} \mathrm{Bug}_U$$

3.1.1. The Methodology for Establishing the Salary Fund for Each Chair

Objective: To estimate staff costs for each chair

Aims: to establish the necessary expenditure for each chair

- to allocate the salary fund per chair;

- to assign management competencies for the salary fund per chair.

Stages:

STAGE 1. THE CALCULATION OF THE SALARY FUND PER FACULTY

The sums that make up staff costs are:

- the budget allocation;
- the income of the given faculty.

a) Income Originating in the Budget Allocation

The budget allocation is allotted to the university depending on:

- the number of equivalent students;
- the budget allocation per student.

The sum representing the budget allocation per faculty is established via the core financing that originated with the Ministry for Education and Research.

The sum total allocated from the budget is divided as follows:

- 80 percent for staff costs, out of which:
  - 80 percent (namely 64 percent of the total sum) for the teaching staff;
  - 20 percent (namely 16 percent of the total sum) for the non-teaching staff; (auxiliary staff employed by the faculty or the chairs)
- 20 percent for material expense of which:
  - 10 percent (namely 2 percent of the total sum) at the level of the faculty;
  - 90 percent (namely 18 percent of the total sum) at the level of the university.

The salary fund, as generated by the budget allocation per faculty, shall be calculated as follows:

Salary fund per faculty = Budget allocation per faculty x 0.64

Note: If there are no non-teaching staff (auxiliary staff) or the salaries owed to this staff are lower than the 20 percent share allocated for this category, the difference can be used for the salaries of the teaching staff of the faculty.

b) The Individual Income of the Faculty

(i) Income generated by tuition fees (registration, enrollment, tuition, examinations, issuing documents, etc). It is distributed as follows:

- 66 percent is left at the disposal of the faculty;
- 34 percent at the disposal of the university.

(ii) Income generated by fees paid in hard currency.

- 5 percent for the Ministry of Education and Research;
- 95 percent for the university, out of which:
  - 70 percent (namely 65.5 percent of the total sum) for the faculty
  - 30 percent (namely 28.5 percent of the total sum) for the university, out of which:
    - ☐ 30 percent (namely 9 percent of the total sum) for other faculties
    - ☐ 70 percent (namely 21 percent of the total sum) for the university

(iii) Income generated by scientific research, grants, sponsorships, etc.

All of it (100 percent) is left with the faculty, chair, or team that has carried out the income-generating activity (after having covered the overheads).

When using their own incomes, faculties have the following priorities:

i. to equip the faculty and the chairs with needed infrastructure;

ii. to provide the minimum nominal salary according to the salary scale, in keeping with the teaching position and the seniority of the teaching staff, plus owed contributions (7 percent + 23.33 percent + 5 percent + other contributions).;

iii. to increase the salaries of the teaching staff until they reach the upper margin of that slot on the salary scale (depending on the teaching position plus the seniority rights), based on the criteria approved by the university Senate. If no salary increases are established, none will be granted.

Taking these priorities into account, the faculties will establish the shares out of their own income, which are allocated for staff costs. The share may be a fixed amount of a percentage derived from the faculty's own income.

The faculty's own income = the income cashed in by the faculty x 0.66

A salary fund generated by the faculty's own income = the sum allocated by the faculty for that purpose

Or, a salary fund generated by the faculty's own income = the faculty's own income x the percentage established by the faculty.

c) How to correct the faculty salary fund

- Because "services are being provided" among faculties, the faculty salary fund is supplemented by the sums of money owed to other faculties or to be received from other faculties.

To clear "services provided" among faculties (teaching hours offered by the teaching staff of one faculty at another faculty of the university) we use the number of equivalent students (N_{se}) in the mathematical formula mentioned below:

$$N = \frac{\text{Number of conventional hours/week x number of weeks}}{\text{Total number of hours/week x annual number of weeks}} \times N_{san}$$

Where:

- The conventional number of hours means the number of course and seminar hours stipulated in the curriculum for those subjects taught by teaching staff coming from other faculties (number of course hours x 2 + number of seminar hours).
- The number of weeks means the number of weeks stipulated for that subject (14 or 28).
- The total number of conventional hours means the total number of course and seminar hours stipulated for the year of study when the subject is taught (number of course hours x 2 + number of seminar hours).
- The annual number of weeks means the duration of the year of study (namely 28 weeks).
- N_{san} means the number of students enrolled in the year during which the subject is taught or the number of students enrolled in or attending that subject.

The amount of money owed to another faculty or to be received from another faculty is the result of multiplying the number of equivalent students (calculated on the basis of the above-mentioned relationship) by the budget allocation per student at the faculty where the subject is taught.

To clear mutual reimbursements between faculties we can do the following:

1. Mutual reimbursements between faculties (for instance teaching staff from the Faculty of Letters teach at the faculty of Sociology and the other way around)

The faculties are obligated:

a) The Faculty of Letters to the Faculty of Sociology	Number of equivalent students x the budget allocation per student at the Faculty of Letters
b) The Faculty of Sociology to the Faculty of Letters	Number of equivalent students x the budget allocation per student at the Faculty of Sociology

If $a > b$ – the Faculty of Letters transfers to the Faculty of Sociology the difference (a – b).

If *b*> *a* – the Faculty of Sociology transfers to the faculty of Letters the difference (b-a).

2. Subtracting the sum owed for the number of equivalent students resulting from the calculations (number of equivalent students x budget allocation per student at the faculty where the subject is taught) from the salary fund of the faculty where the subject is taught by teaching staff from other faculties and adding the sum to the salary fund of another faculty in which the teaching staff teaching that subject has his teaching load:

The sums resulting from this clearing process are subtracted or added to the salary fund of the faculty.

The resulting salary fund of the faculty shall be:

> Salary fund per faculty (Fs/fac) = Salary fund resulting from the budget allocation (Fsab) + the salary fund made up of the faculty's own income (Fsvp) ± corrections of the salary fund resulting from the mutual reimbursements between faculties (Cors),

Fs/fac = Fsab + Fsvp ±Cors.

STAGE 2. ESTABLISHING THE AVERAGE RATE FOR TEACHING HOUR

Based on the curriculum of the faculty, a document is drawn up, called "Total Number of Teaching Activities Directly Carried out with Students" (see Table 16).

By adding columns 21, 22, 23, and 24 of Table 16, we get the number of hours owed according to the curriculum of the faculty.

The salary fund per faculty, calculated according to Stage 1, is divided by the number of total hours owed according to the curriculum (Table 1), and so we get the average rate per teaching hour.

Average rate/hour = salary fund / total number of teaching hours

When calculating the total number of hours, we include optional and elective courses as well as practical classes.

When establishing the total number of teaching hours, we shall take the following into account:

- the number of course and seminar hours per week as stipulated for that subject in the curriculum;
- the number of parallel series if the subject is taught to two or several parallel series;
- the number of working groups (large or small) per years of study;
- courses that are taught only once for several domains of study.

Note: The number of series and working groups are established for all the years of study by the faculty board.

- Subjects in which the courses are delivered only once per several domains of study are to be nominated by the faculty board.
- All the chairs shall observe the working groups established per years of study at the level of the faculty.

STAGE 3. THE SIZE OF THE SALARY FUND PER EACH CHAIR

Each chair shall elaborate a report similar to the one presented under Table 16 and called "Total number of teaching activities directly carried out with students".

Adding up columns 21, 22, 23, and 24, we can establish the total number of teaching hours allocated to the chair according to the subjects taught by it.

The salary fund allocated to the chair is derived by multiplying the total number of teaching hours (the sum of columns 21, 22, 23, and 24) by the average rate per teaching hour (established during stage II).

The Salary fund per chair = Total number of teaching hours per chair x average rate per hour

The salary fund established according to the above-mentioned methodology has to totally cover all staff costs (nominal salaries, benefits, taxes, payroll taxes, social security, etc).

Table 16. Recapitulation of direct teaching activities with students

ID#	Discipline title	Section Form (FT, PT, PG, M)	Year of study	No. of students				Curricular obligations and number of weeks (hours/week)									Total hours/year (physical units)				Total curricular hours (conventional units)			
								I-st SEMESTER						2-nd SEMESTER										
					No. of series	No of large groups	No. of small groups	No. of weeks	C	S	L	P	C	S	L	P	C	S	L	P	C	S	L	P
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

FT = Full-time
PT = Part-time
PG = Postgraduate
M = Master's level

C = Course
S = Seminars
L = Practical activities
P = Projects

Table 17. Personal expenditures per chair

ID#	First name Last name	Teaching position	Nominal wage	Bonuses							Gross income
				Seniority (teaching)	Incentive	Stress	Doctoral title	Total years of service	Leadership	Total bonuses	
0	1	2	3	4	5	6	7	8	9	10	11=3+10

Note: The sum of teaching hours per chair has to equal the total number of teaching hours per faculty:

Teaching hours (chair 1) + teaching hours (chair 2) + teaching hours (chair 3) … = Total number of teaching hours per faculty

STAGE 4. ESTIMATION OF STAFF COSTS NECESSARY TO COVER THE NUMBER AND TEACHING LOAD OF ALL TEACHING POSITIONS PER CHAIR

When teaching loads are established, a number of teaching positions are designated. For positions held by tenured staff, we have to take into account the salaries of the existing staff, depending on the teaching position and seniority rights. Vacancies are allocated the minimum salary available in the salary scale slot of that teaching position. For positions held by tenured staff, it is necessary to include both the nominal salary and the benefits granted to the teaching staff as well as the staff expenditure (social security contributions, health insurance contributions, unemployment fund contributions, etc).

Table 17 illustrates a model to calculate the staff expenditure necessary to cover the number and loads of all the teaching positions the chair has.

Note: Data on the staff expenditure per chair can be provided by the salary department or can be calculated as per Table 17.

Staff expenditure shall be calculated as based on the teaching position roll for the academic year 2001 – 2002.

STAGE 5. A COMPARISON OF THE ALLOCATED SALARY FUND AND STAFF EXPENDITURE PER CHAIR

The salary fund allocated to the chair as per Stage 3 is compared to the staff expenditure (as per Stage 4). The following possible situations may result:

a) The salary fund allocated to the chair *is larger* than the sum necessary to cover the staff expenditure of the chair.

- This situation occurs when an available fund is created and attached to the salary fund of the chair and which is in excess of the staff expenditure.
- This available fund shall be allocated to increase the individual salaries of the teaching staff, based on the following criteria:
  - quantitative (increased number of hours in the teaching load in excess of the upper limit of that specific teaching position);
  - qualitative (according to Emergency Ordinance no 8/2000 on methodological norms used to assess the individual performance of teaching staff in higher education (*Official Gazette* 83/23.02.2000)

Clarifications:

- The upper value of the salary cannot exceed the upper salary limit stipulated in the salary scale for a specific teaching position plus the seniority rights of a staff members.
- The coefficient to increase each individual salary is established as per the lower limit of a specific teaching position plus the seniority rights.
- For most quantitative criteria, the coefficient is calculated by establishing a relation between the maximum number of teaching hours directly held with the students stipulated by the teaching load and the maximum number of teaching hours for a specific teaching position.

The upper limit of the number of teaching hours per teaching position is the following: junior assistant – 6 hours; assistant – 11 hours; lecturer – 11 hours; assistant professor – 9 hours; and full professor – 7 hours.

Note: For those faculties or subjects which do not have teaching hours or the activity means mainly practical courses or the working group includes a very low number of students, the upper limit of teaching hours per teaching position is increased by two conventional hours.

b) The salary fund allocated to the chair equals the staff expenditure of the chair.

  - In this situation, the salaries are calculated according to the salary scale, depending on the teaching position and seniority rights.
  - Vacancies will be paid according to the hourly rate system, calculated at the lower limit of the salary scale for the specific teaching position.

c) The salary fund allocated to the chair is lower than staff expenditure.

  - This situation arises when the salary fund does not cover the necessary staff expenditure to pay for all the teaching positions of the chair (the extent to which the salary is covered is the result of a relationship between the allocated salary fund and the necessary staff expenditure.

d) Possible means to redress the situation:

  - Review the curriculum and cut down on the number of hours allocated to the subjects taught by the chair.
  - Redistribute the subjects among chairs across the faculty.
  - Reorganize the chair within a given faculty.
  - Increase the number of teaching hours included under the vacancies to cut down on the number of teaching positions (accepting the hourly rate system of payment at the lowest possible value).
  - Laying off personnel (teaching staff about to retire, individuals teaching subjects that offer no future perspective, etc).

FINAL REMARKS

- The salary fund per faculty is a fixed sum of money, which means that multiplying the number of hours without any justification by either maintaining the number of hours per week or by increasing the number of working groups will trigger a reduction of the average hourly rate and will increase the number of teaching positions.
- It is recommended that classes offered to advanced students, MA students, and postgraduate students not be included in the teaching loads of the tenured staff. These classes have a higher multiplication coefficient; so, they result in a reduction in the number of physical hours per teaching job to the detriment of the teaching hours necessary for basic education. To the extent possible, such classes should be included under vacancies, and they should be paid for at the real level of activity.
- When distributing the salary fund per teaching staff member (establishing the individual gross salary), we should also establish the reserve necessary to cover promotions during the academic year (upward moves) as well as switching to a new seniority category.
- Optional courses and electives should also be included under vacancies, so as to be paid for only to the extent to which there is effective teaching activity going on for these subjects.
- No accumulation of teaching positions should be permitted.
- Vacancies should be entirely covered by the hourly rate system of payment.
- Payment for the examinations related to the courses included in the vacancies is included in the hourly rate payment. Examinations are not paid for separately.
- If only the quantitative criterion is used to increase individual salaries, the sums to be added at the nominal

salary rate should not exceed the source created by reducing the number of teaching positions (to increase salaries we use the savings resulting in a reduction in the number of teaching positions).

- It is recommended that vacant positions for lecturers be created to include the courses and the positions for assistants and seminars (the hourly rates are smaller, but we can create reserves to increase the salaries of staff members).
- Upward promotion does not necessarily call for the creation of vacant positions. Example: promotion to a position of assistant professor. A position of assistant professor is created or the position of lecturer is transformed into a position of assistant professor. The substitute holds this position, namely the holder of the transformed position who is to sit for the competition (while his work contract is transformed from a permanent agreement into an agreement valid only over a limited period of time and his salary remains that of a lecturer). After the competition has been organized and validated, the individual becomes an assistant professor and a tenured staff member.
- If a professor is accredited to supervise doctoral theses, this activity is included in his or her teaching load according to a rate of no more than twelve PhD students per supervisor and only during the preparation stages (examinations and reports) of such students, without exceeding a period of four years after enrollment.

IMPLEMENTATION STAGES FOR THIS METHODOLOGY

i) Revisiting all curricula for all domains of study to establish the number of hours depending on the demands and the objectives of the training period.
ii) Calculating the salary fund per faculty.

iii) Establishing the working groups (number of parallel series, number of groups, courses or any other activities commonly held).
iv) Calculating the total number of conventional hours per faculty.
v) Establishing the average hourly rate per conventional hour.
vi) Calculating the total number of conventional hours per chair.
vii) Establishing the salary fund per chair.
viii) Constructing the rolls of teaching positions per chair.
ix) Calculating the staff expenditure necessary to cover the number and teaching loads of all the teaching positions in the teaching positions roll.
x) Comparing the salary fund allocated to the necessary staff expenditure and balancing them.

3.1.2. Universities Must Know how to Calculate Their Own Costs

A second important element for the efficient use of the funds received from the budget is the following: universities must know how to calculate their own costs and control their internal administration. A proper costs analysis allows the following:

- the improvement of internal management;
- the elaboration of realistic programmes;
- the conclusion of sound contracts with Government institutions and other partners;
- the establishment of annual costs for a student in each domain (field).

The essential components that must be analyzed are the following:

- maintenance expenditures;
- staff expenditures;
- the amortization of capital expenditures.

The essential parameters affecting student costs are the following:

i. *The more or less applied character of the domain*: Training in a specific field becomes more expensive the more it involves material experimentation. The laboratory experiments cause a rise in the level of maintenance expenditures, staff expenditures (academic or technical staff).

ii. *The teaching models proposed to students:* Per student costs will increase proportionally with the increasing number of hours in the teaching plan and the decrease in the number of students forming a study group.

iii. *Teaching organization:* An annual organization is less expensive than a very segmented modular organization.

iv. *Funding methods* (the possibility to attract funds from the budget for newly created departments).

There are accurate definitions and quality standards for certain departments at the national level, and approval to create new departments is given only when the necessary resources from the State Budget are available. For other departments, even if they comply with the accepted definitions and national standards, the approval of their creation does not involve, automatically, a core funding.

Two years ago, the Observatory of Costs (a specialized organism in France that analyzes higher education costs) published a case study that showed the influence of the previously mentioned parameters on costs in higher education.

The results of this analysis were as follows:

Two types training in the same domain do not have the same costs, depending on whether or not they involve mandatory material experimentation (EMO or SEM). The example illustrates the case of the BS degree in mathematics (SEM) and the other BS degrees in the sciences related to structures and matter.

Figure 4. The influence of material experimentation on costs

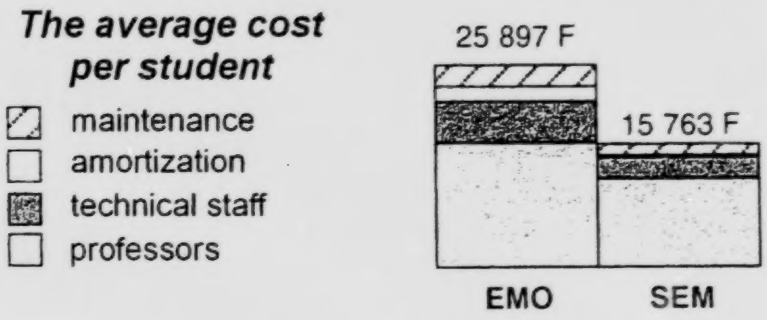
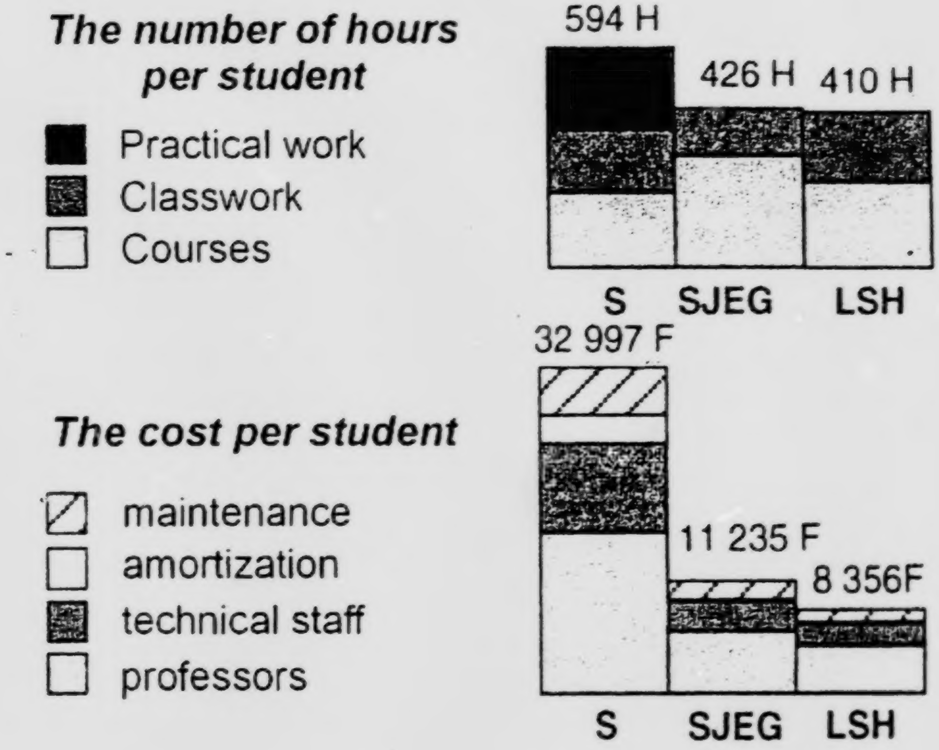
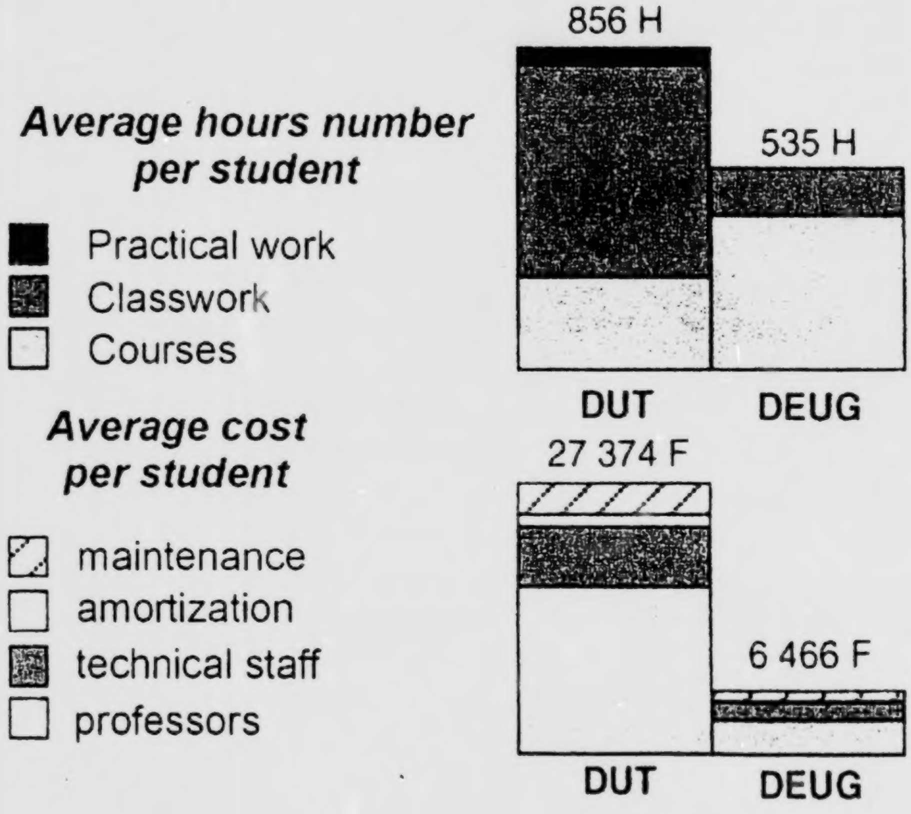


Figure 5. The influence of the teaching models on the costs



Pedagogical models are different, depending on the specific domain: the sciences (S) propose courses, classwork, and practical work originating in their obligation to perform material experimentation. Law, the economic sciences, and accounting (LEAS), along with the social sciences and the humanities (SSL) propose courses and classwork in different proportions. The pedagogical organization (annually or in teaching units) plays an important role in the final cost. The chosen example covers the BS or BA degrees from the Université de Maine (Chemistry, Law, and Modern Humanities, respectively).

Figure 6. The influence of the funding methods



The teaching models vary significantly, whether they were created and financed automatically or were accredited without automatic funding. The example of the proposed teaching methods for students in law, economics, and management, in their first year of DUT and DEUG, is striking. Moreover, IUT classwork takes place in small groups of students.

The brief analysis presented above cannot be closed without an attempt to answer the question (naïve but very often encountered): is it proper to design a higher education system with costs that are as low as possible?

Or, in a weaker form: is it normal to keep the price of higher education constant?

The answer does not make sense unless we consider the quality of the higher education (that needs to be assessed!).

The quality of education means:

- the quality of the degree obtained on graduation, reflecting the competencies and the knowledge acquired
- the teaching quality, in terms of teaching practice and the performance of the educational channel

Another channel (for example a selective one at the entrance to higher education) receives students that come with high potential.

- To evaluate the means to compare the results of the teaching process with its costs.
- As a consequence, optimization of costs does not mean decrease in costs.

Low costs can be the result of optimal management, but can also be the result of a poor teaching offer. For example, a technical university can sensibly reduce the costs per student, reducing the volume of experimental activities and/or choosing inexpensive materials for experiments. However, it is difficult to imagine that such a measure could be taken without a negative influence on the competencies and the knowledge of the graduates of universities.

Optimizing costs means establishing objectives for a particular type of training and choosing the best teaching strategy in order to achieve these objectives.

The fundamental element of optimization is an interaction, that is, the following:

- interaction between professors from different departments;
- interaction with the economic and social environment;
- interaction in using the equipment (the cost per student diminishes as the number of users increases).

3.2. THE CAPABILITY TO GENERATE THEIR OWN INCOMES

The internally generated revenues of universities may be approached in two different ways:

i. as a means to cover budget cuts and insufficient state budget allocations;

ii. against a broader context, aiming at fundamental changes in the structure and mission of a university, so that the university can become more enterprising or even aggressively entrepreneurial.

"Against the traditional European background, entrepreneurial universities are those institutions which are actively trying to move away from the influence of government and sectorial limitations. These universities are looking for a special organizational identity; they are testing their luck "on the market". They share the belief that it is preferable to take the risk of operating experimental changes in the nature of the university than risk maintaining traditional formats and practices" (Clark, 1998).

When it comes to implementing this desire in practical terms, we cannot draft generally acceptable theories applicable to universities. What we can do is to design explanatory categories applicable to different categories of institutions, without neglecting their specific features. We can imagine general categories that explain a large variety of cases without distorting the unique character of each individual case.

Any answer to the question: 'how do universities transform themselves as a result of their enterprising activities' must contain at least the following elements (*cf.* Clark, 1998):

- a strengthened steering core;
- a extended development periphery;

- a diversified funding base;
- a stimulated academic heartland.

The strengthened steering core: Traditional European universities have long exhibited a notoriously weak capacity to steer themselves. As their complexity has increased and the pace of change accelerated, that weakness has become more debilitating, deepening the need for a greater managerial capacity. Unambitious universities can ignore this need and drift with the tides of traditional patronage. Universities that serve as flagships of élite institutions in their own national or state systems of higher education can ignore the lack of steering capacity longer than others and can continue to depend upon their outstanding reputations and political clout for guaranteed resources and competitive status. But ambitious universities, and universities concerned with their marginality, and even their survivability, cannot depend on old habits of weak steering. They need to become quicker, more flexible, and especially more focused on reactions to expanding and changing demands. They need a more organized way to refashion their programmatic capabilities. A strengthened steering core becomes a necessity. As we shall see, that core can take quite different shapes. But it must embrace a central managerial group and academic departments. It must reconcile new managerial values operationally with traditional academic ones.

The expanded development periphery: Enterprising universities exhibit a growth of units that, more readily than traditional academic departments, reach across old university boundaries to link up with outside organizations and groups. In one form, these units are professionnalized outreach offices that work on knowledge transfer, industrial contact, intellectual property development, continuing education, fundraising, and even alumni affairs. In another large, and more basic form, they are interdisciplinary project-oriented research centers that grow up alongside departments as a second major way to group academic work. Academic departments based on disciplinary fields of knowledge will go on being important. Their disciplinary competencies are essential, too valuable to throw away, and they have much power with which to protect their own domains. But the departments alone cannot do all the things that universities need to do. Outward reaching research centers express nondisciplinary definitions of problems. They bring into the university the project orientation of outsiders who are attempting to solve serious practical problems critical to economic and social development. They have a certain flexibility in that they are relatively easy to initiate and to disband. Constructed to cross old boundaries, the centers mediate between departments and the outside world.

If a university's trade with external groups is to continue to evolve, its infrastructure must keep pace. Anxious to find better tools for coping with societal demands, entrepreneurial universities take the risk of promoting an entirely new periphery of nontraditional units. As we shall see, substantial organizational creativity is involved, and a diversified funding base is needed.

To fashion a new change-oriented character, a university generally requires greater financial resources: it particularly needs discretionary funds Widening the financial base becomes essential, since virtually everywhere mainline institutional support from government, as a share of total budget, is on the wane. Enterprising universities recognize this trend and turn it into an advantage. They set up their efforts to raise money from a second major source, research councils, by more vigorously competing for grants and contracts. They set out to construct a widening and deepening portfolio of third-stream income sources that stretch from industrial firms, local governments, and philanthropic foundations, to royalty income from intellectual property, earned income from campus services, student restaurants, and alumni fundraising. Third-stream sources represent true financial diversification. They are especially valuable in providing discretionary money, including top-sliced sums extracted from research grants. In the process of increasing income from the second and third streams, entrepreneurial universities learn faster than non-entrepreneurial counterparts that money from many sources enhances the opportunity to make significant moves without waiting for system-wide enactment that come slowly, with standardizing rules attached. They accept and promote the maxim offered by two American observers as long ago as the early 1960s: "a workable Twentieth Century definition of institutional autonomy (is) the absence of dependence upon a single or narrow base of support".

The stimulated academic heartland. When an enterprising university evolves a stronger steering core, develops an outreach structure, and diversifies its income streams, its heartland is still found in the traditional academic departments formed around disciplines, new and old, and some interdisciplinary fields of study. Spread across the operating base of the university as sites of research and particularity of teaching, the basic units, and their more encompassing multi-department faculties, continue to be the places where most academic work is done. Whether they accept or oppose a significant transtraining is critical. It is here in the many units of the heartland that promoted changes and innovative steps are more likely to fail. If the basic units oppose or ignore would-be innovations, the life of the institution proceeds largely as before. For change to take hold, one department and faculty after another needs itself to become an entrepreneurial unit reaching more strongly to the outside with new programmes and relationships and promoting third-stream income. Their members need to participate in central steering groups. They need to accept that individuals as well as collegial groups will have stronger authority in a managerial line that stretches from central officials to heads of departments and research centers. The heartland is where traditional academic values are most firmly rooted. The required blending of those values with the newer managerial points of view must, for the most part, be worked out at that level. In the entrepreneurial university, the heartland accepts a modified belief system.

The integrated entrepreneurial culture. Enterprising universities, much as firms in the high tech industry develop a work culture that embraces change. The new culture may start out as a relatively simple institutional idea about change that later becomes elaborated into a set of beliefs which, if diffused in the heartland, becomes a university-wide culture. Strong cultures are rooted in strong practices. As ideas and practices interact, the cultural or symbolic side of the university becomes particularly important in cultivating institutional identity and distinctive reputation. In the transtraining of universities, values or beliefs may lead to or follow the development of the other elements. We shall see them in cycles of interaction, themselves developing over time. Organizational values ought not to be treated independently of the structures and procedures through which they are expressed. An institutional perspective is required. The first four or five elements are means by which transforming beliefs are made operative.

Against the background of what has been mentioned above, Clark (1998) carried out a series of case studies in the following universities: the University of Warwick, the University of Twente, the University of Strathclyde, Chalmers University of Technology, and the University of Joensuu.

These universities have turned into entrepreneurial universities, and the result was substantially increased financing along with a strong diversification of funding sources. The tables 18-23 illustrate this transtraining.

Table 18. Sources of financial support at the University of Warwick: 1970-1995 (millions of £ sterling)

	Core support		Research grants and contracts*		All other sources		Total	
Year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1970	2.0	69	0.3	10	0.6	21	2.9	100
1975	5.1	69	0.7	9	1.6	22	7.4	100
1980	14.6	70	2.0	10	4.3	20	20.9	100
1985	21.5	60	4.8	13	9.8	27	36.1	100
1990	36.0	43	14.6	18	31.9	39	82.5	100
1995	51.3	38	19.7	15	63.0	47	134.0	100

* Includes research grants and contracts from both governmental and nongovernmental sources; *e.g.*, in 1995, the governmental source was about nine percent, the nongovernmental totaled about six percent, making a total of fifteen percent.

Source: Trend data gathered by Paul Anderson, Assistant Registrar, the University of Warwick.

Table 19. Sources of financial support at the University of Twente, 1970-1995 (millions of Dutch guilders)

	Core support		Research councils		All other sources*		Total	
Year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1970	37.5	93	**	--	2.9	7	40.4	100
1975	89.5	94	**	--	5.6	6	95.1	100
1980	134.4	96	**	--	5.4	4	139.8	100
1985	155.7	85	3.9	2	23.4	13	183.0	100
1990	177.0	74	13.0	5	50.6	21	240.6	100
1995	233.5	76	10.4	3	63.7	21	307.6	100

*Includes tuition and fees

**Unknown: estimated to be less than 2 percent of the total, based on 1985 figure of 2 percent

Source: Trend data provided by Michael Van Buchem, Deputy Secretary, University of Twente.

Table 20. Sources of financial support at the University of Strathclyde: 1970-1995 (millions of pounds sterling)

	Core support		Research Councils		All other sources*		Total	
Year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1970	3.8	75	0.6	11	0.7	14	5.1	100
1975	8.3	80	1.0	10	1.1	10	10	100
1980	15.6	64	1.2	5	7.7	31	24.5	100
1985	24.0	59	2.0	5	14.9	36	41.8	100
1990	38.3	48	3.8	5	37.5	47	79.6	100
1995	59.8	45	5.8	4	67.1	51	132.7	100

*Includes tuition and fees

Source: Trend data compiled by David Coyle, Finance Officer, University of Strathclyde.

Table 21. Sources of financial support at the Chalmers University of Technology: 1980-1995 (millions of Swedish Kroner)

	Core support		Research Councils		All other sources		Total	
Year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1980	222	67	62	19	47	14	331	100
1985	315	59	104	20	113	21	532	100
1990	618	58	258	24	193	18	1069	100
1995	794*	55	353	25	290	20	1437	100

*Under the new 1994 "Foundation" arrangement, a governmental allotment for costs of premises was included for the first time.

Source: Trend data compiled by Helen Stromberg, Chalmers Planning Officer.

Table 22. Sources of financial support at the University of Joensuu, 1980-1995 (millions of Finnish marks)

	Core support		Research Councils		All other sources		Total	
Year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1980	28.3	96	0.4	1	0.9	3	29.6	100
1985	72.5	94	1.8	2	2.7	4	77.0	100
1990	88.3	70	6.5	5	31.7	25	126.5	100
1995	155.0*	66	15.7	7	63.6	27	234.3	100

Total government outlay of 222.7 million included two new allocations not previously included: 4.5 million for the university to pay rent on its buildings; and 22 million to make payments on retirement funds. The comparable figure then becomes approximately 155 million.

Source: Income trend data compiled by Seppo Holtta, Director of Planning and Development, University of Joensuu.

Table 23. Basic degrees and doctoral degrees at the University of Joensuu, by faculty, 1995, university share (in percentages)

Faculty	Basic Degree		Doctoral Degree	
Science	15}	22	46	64
Forestry	7}		18	
Social Sciences	16}	62	9	
Humanities	24}		15	27
Education	38		12	
	100		100	

Source: Faculty of Science Annual Report 1995, University of Joensuu, pp. 4-5.

We shall comment (along with Clark, 1998) on the first table, hoping that the example set by the University of Warwick stands for an excellent materialization of the general principles governing the financing of universities:

Warwick is at the cutting edge of a general trend in the financing of European universities: less governmental support as a share of the whole, more support from non-governmental (particularly non-education ministry) sources. To simplify, income streams for individual public universities take three main forms.

- Stream 1, mainline state allocation, is a standardized mode of traditional funding, with funds commonly based on some combinations of numbers of students, faculty, and even physical plant space.
- Stream 2, funds obtained from governmental research councils, is a mode that differentiates among universities according to the degree their professors, departments, and research groups win and lose competitions for research grants and contracts.
- Stream 3, income from all other sources differentiates universities extensively, as funds are or are not obtained from industry, philanthropic foundations, local, regional, and national government departments other than the main education-ministry source, and from the European Union, student fees, endowment income, and surpluses or profits earned on a variety of campus self-supporting operations. The world-wide trend shows income shifting

> from nearly total dependence on the first stream to greater reliance on an array of sources, particularly those here lumped together as a third stream. And the trend is accelerated by entrepreneurship. Entrepreneurial universities seek third-stream sources and actively reach out to them.

The earned-income policy of Warwick has done precisely that. Early on, it pushed to raise monies that were not allocated by government. Its income figures for 1995 showed that in a total budget of approximately 134 million pounds, just 51 million (38 percent) come from the Higher Education Funding Council (England), together with grants for teacher training from a national Teacher Training Agency. Income from research grants and contracts came to about 15 percent, 9 percent from governmental research councils and 6 percent from non-governmental sources. All other support, nearly 50 percent, and increasing came from additional third-stream sources. These include fees from overseas students (who pay full cost) and vocational/short courses, approximately 16 million (12 percent); and other income from sources noted in our discussion of the developmental periphery, totaling over 37 million pounds (30 percent), including management training courses, catering and conferences, and campus retail operations. The trend from 1970 on that led to these mid-1990 income shares is shown in Table 18. Mainline government support dropped from about 70 to less than 40 percent during the 1980-1995 years; third-stream sources increased as a share of the whole from about 20 to nearly 50 percent; second and third streams together had become about two-thirds of all income.

The earned income policy began as a way to fill the gap left by the state when it started systematic cuts in support, in the early 1980s. Earned Income has done that and more. It has provided the means for new initiatives. It has provided the funds for cross-subsidy to academic departments and subjects that bring in little or no extra money but are viewed as institutionally worthy of continuing support and enhancement.

But more income is always needed: universities are expensive, and good universities are very expansive. In the mid-1990s, Warwick decided to adopt the step it had shunned in the early 1980s when it voiced the doctrine that we shall go out and earn money rather than beg for it. Oxford and Cambridge, with their towering prestige and unmatched well-to-do alumni, had just shown that major sums could be secured through organized "fundraising".

Warwick decided in 1995 to commit itself to a long-term effort along this line. It now had an estimable reputation and loyal alumni. The effort would entail short-term pain for many campus units: to hire a first-class Director of Public Affairs and a Development Officer and provide them with resources to tackle the job in a major way, 500,000 pounds had to be "clawed back" from the existing budget. Once the Joint Strategy Committee made the decision to go this route – to seek major long-term enhancement of discretionary income from combination of annual gift-giving and endowment income – and to do it now rather than at some undefined later date, the senior administrative officers had to take some funds from one academic unit after another. They were, in effect, required to cross-subsidize a development venture from academic programmes and early retirements. The capacity to do so was another example of the power of the center to assert the institutional interest by mounting a new initiative and finding the means, from a tight budget, to effect it. Serious payback here, if the new fundraising infrastructure is successful, may be eight to ten years down the road.

3.3. DESIGN A CLEAR AND REALISTIC PERSPECTIVE OF DEVELOPMENT FOR THE UNIVERSITY (STRATEGIC PLANS)

Drafting the multiannual policies at institutional level and signing a contract between universities and the higher body which commits itself to have financial participation, if the state budget allows it. So, it is good for us to do the following:

- First of all, to sign such a contract generally means to show preference for a global approach against a sectorial one. In other words, global coherence prevails over juxtaposition. For the higher body, the contract should make it easier to draft an explicit local programme that integrates all the activities. The stages to be followed to get here are the following: a relatively long preparation stage, which means analyzing the existing situation and the foreseeable developments in order to define the major trends that the university is to follow in the future. Once approved by the higher body, this project serves as a basis to negotiate financial and human resources. A good contract is one that is based on a project that is much more than a sum of projects corresponding to the components of the university. Such a project should include options and policies. It should also reflect priorities.

- Then, concluding such a contract means strengthening accountability of the university. Moreover, the prestige of the university president is enhanced when he negotiates the contract with the ministry.
- The institutional contract triggers a modified manner of allocating resources, and especially, it marks a switch from an annual budget management to multiannual forecasts (which is a kind of revolution for public bookkeeping). As to the allocation and management of (material and human) resources, the institutional contract translates into a switch of logic, allowing the local level to play a more important part and creating a (limited, but real) negotiating space that takes into account the local specific features. On the other hand, the Ministry comes to know local needs better, as they have more refined information.
- Finally, an institutional contract means more transparency and an input of trust; indeed, to promote a contract, units are interested in making the local situation better known, in making full use of their own specific features; so, in a word, it is more useful for them to play the act of transparency. But, if units have to shed

light on their situation, the higher body must accept to have a closer look and to keep a more critical eye on the situation.

Relations of great trust may be built on this basis, mainly between the "higher body" and the "periphery". The various stages of the negotiation referring to objectives and resources allow each player (higher body and university) to understand their own constraints, even to anticipate them, so as to be able to formulate, on the one hand, real needs, and on the other hand, reasonable demands. The awareness of mutual constraint allows them to escape the "dialogue of the deaf" which traditionally characterizes the relationships between the higher body and the periphery within the public sector. Promoting an institutional contract will trigger several changes within the higher body, as well as a significant change in the very nature of the activity as a body.

The body will need new functions, such as: promoting the concept of an institutional contract, publicizing it, spreading it, coordinating it. The aim of it all will be to mange and to adjust to the new processes, to integrate various components of the contract, to establish new relations with external departments, and to assist them in their activity to ponder on things and to do research.

The higher body will have to adjust its staff and structures. The working style will be changed. It will be necessary to establish closer co-operation among departments, so that the higher body can really be an integrating element in relation to the units. Finally, the Ministry will be confronted with a major difficulty – namely, to guarantee that the process is maintained.

The institutional contract policy is a difficult exercise for the higher body, as it entails new competencies, a new organization and operating manner, as well as some continuity.

It is only natural that having reached this point, we should ask ourselves whether the contract policy has proven to be beneficial or not, in case it is implemented. Analyzing the situation in France, we find several arguments why the answer should be in the affirmative.

These include: strengthening the president's role at the university, a better knowledge of the situation, and establishing development priorities for the four years to come.

On the other hand, the role of the higher body has increased. Indeed, it was the higher body that set up these contractual policies, and they strengthened its steering capacity. When a contract is concluded with the periphery, in no way is it a means to disengage the higher body. It is rather a better way to manage the situation, to "govern" it. The higher body still continues to intervene, but it uses non-traditional means. Even if the State gave up being the progressive deity of French society, the image of the modernizing state would not die, given the central administration. In fact, the higher body was the promoter of the new policy. It designed and it implemented it. During the first stages, the higher body established a diagnosis of the situation. In other words, the higher body imposed its own analysis on the existing situation and disseminated it so as to justify the directions it chose and to suggest a remedy. Therefore, it established a cause – effect relationship between the problem and the solution – the use of contracts.

We should stress one idea here, as it has a major impact on the situation existing in Romania. The resources allocated under a contract are a means to finance interesting strategic activities as well as to allocate finances and additional positions to those institutions that have a shortage of staff, as such institutions could never bridge the gap only using funds exclusively allocated according to the criteria (the formula). We cite as an example the "small" universities that only receive the core financing based on the formula and keep complaining they are under-funded.

Thus, the use of contracts is part of a political outlook on things, not part of an economic or market outlook.

Owing to the use of contracts, centralization, as it were, contradicts the traditional centralizing practices, as the latter are trying to reach harmonization at a national level by issuing regulations applicable to all according to the same criteria, even though it is widely known that this type of egalitarian treatment does not fit reality.

The use of contracts shatters this mode of action because it takes diversity into account to a greater extant.

Still, there is no denying that there are national principles. For instance, universities cannot promote a selective entrance policy (free access is a fundamental principle of French higher education), nor can they change the enrollment fees, while the degrees earned are mostly national. At the same time, there may be courses that are of local interest (the economic situation of a specific region, for instance). Staff management is subjected to national regulations and, even if there are negotiations, the higher body is the one that finally agrees that a specific position is allotted to a specific subject or a specific teaching rank.

So, the limitations that affect the peripheral universities are not touched upon, even if it is accepted that the answer to these limitations should not necessarily be the same everywhere. The higher body is the one that guarantees equity, national principles, and general resources.

The use of contracts strengthens a bilateral interaction between the higher body and the periphery that enjoys a controlled autonomy.

To conclude, we still have a constant answer to the question of whether the use of contracts has been beneficial to French higher education or not: there are arguments that it "has" and arguments that it "has not". It is just like the story about the glass that can be seen as "half empty" or as "half full". What is certain is that the glass is not empty!

What can be imagined for the future?

First of all, we must clearly define the development of the relationship between centralization – autonomy. All the philosophy of institutional contracts seems to lead to the following conclusions: the higher body has to define the directions, the big axis, the national rules that make up the framework within which the periphery will be able to construct more diverse realities than before.

But, it is difficult to implement this idea, for several reasons:

(i) The higher body itself has to be sufficiently "unanimous" to be able to define a coherent general framework. It is difficult to reach agreement on a common framework if the higher body is subject to internal tensions.

(ii) The general directions are relatively stable, thus allowing the periphery to launch firm policies, which is not easy to do within a sensitive system as higher education is.

(iii) Finally, the general directions can contradict the policies adopted by the various individual units based on the idea of autonomy.

As a conclusion, we suggest a possible structure for an institutional strategic plan (*cf.* Nica, 2001).

Table 24. The structure of university strategic plans

Components	Explanations
(i) Mission of the university	The aims and the distinctive features of a university have to be clearly formulated, and the main institutional objectives of the period under consideration are also included. The defined mission is based on a thorough analysis of the activity so as to answer questions such as: – What is the aim of the university/faculty? – What kind of university/faculty do we mean to have? – How are we going to provide teaching and scientific/academic services? The aim of formulating the mission is to *personalize, to individualize* the university. Doing so shows how the university will be different from other universities, what will be its identity, its nature, and the direction it shall take for its development. The mission of the university will clearly state what the university *wants* and what it *does not want*, as well as the *meaning* its future activity will have. The mission can be established both for the university as a whole and for each separate faculty. A definition of the university mission as well as of the mission of each faculty must allow us to understand and define the domains and the types of academic activities in which a university is involved. It must also state the moment when the strategic direction will take a different turn. The mission must be clearly communicated, in an attractive, brief form.

Components	Explanations
(ii) Academic objectives	The current portfolio and a forecast of the major changes referring to faculties, specialized studies, offers, and trends in teaching as well as in scientific research and public services must be available. Higher education and postgraduate studies must be viewed as priorities, while an organizational system that favours this direction must be designed. To be operational, objectives have to be clearly formulated, achievable over a clearly defined period of time, as well as being quantifiable. Before identifying the objectives, it is necessary to analyze the external and internal environment factors. While analyzing the external environment, we can identify the *opportunities* and the *threats*, whereas while analyzing the internal environment, we can identify the *strong points* as well as the *weak points*.
(iii) Number of students	Includes: – student access and participation in the education process; – entrance examination formats and criteria; – student distribution per faculty, specialized studies, and types of studies (colleges, higher education, and postgraduate studies); – assessment of student flows in relation to labour market demand, based on studies referring to internal needs (present and future) and compatibility with international statistics; – interactive measures by which the faculty proposes to diminish the rate of graduate failure to be employed (based on factors which determine the value of

Components	Explanations
	this rate) and the rate of absorbing the costs of graduate professional adjustment/conversion (based on the sources of the university's own income to be allocated).
(iv) Policies related to teaching methodology	To what extent do teaching and learning methods meet student expectations and training? Procedures used to provide an increase in quality of the teaching process and also to improve the effectiveness of the teaching methodology.
(v) Research policies	The way in which the university/faculty intends to support those domains of scientific research which have reached the highest quality level, a national or international importance (centers of excellence, advanced studies schools, postdoctoral studies, etc.)
(vi) Collaboration	Specific policies to promote local, regional or international collaboration, both among higher education institutions, and between the former and the external environment

Components	Explanations
(vii) Human resources management policies	Policies specific to human resource management destined to make it possible for the university/faculty to attain its aims. These policies refer to: – recruitment; – selection; – promotion; – motivation; – performance assessment; – how to employ the associate teaching staff; – improving services and providing refresher courses for the teaching staff, the scientific research staff, as well the administrative staff.
(viii) Policies to manage university assets	– the current portfolio of land, buildings, and equipment, as well future intentions to develop them; – (re)establishing ownership of the institution over its assets; – an assets management system.
(ix) Policies related to information, documentation, and libraries	Developing and operating IT systems to be used while teaching and learning, and also for research and administration, indicating to what extent the university/faculty has established an integrated policy on intraining.
(x) Financial policies (revenues and expense budgets)	– Financial forecasts materialized in synthetic and analytic budgets (including objectives and strategic trends), based on constant (as well as variable) prices, supplemented with comments as to their correlation with the other stipulations in the strategic plan.

Components	Explanations
	– A system to use extra-budgetary resources, stating the sources, the amounts, and the destination of the money. – A possible way to be able to resort to bank credit.
(xi) Quality policy against the background of total quality management (TQM)	University internal audit, including all its components; – Promoting total quality management (TQM) throughout all the departments of the university/faculty – According to W. Edwards Deming, the initiative to improve the quality of an organization (university/faculty) must come from the senior executives (rector, deans), so it is necessary to operate a change in the organizational culture and to clearly define a strategic outlook Consequently, more than 85 percent of the causes that affect the quality of an organization (university/faculty) are of a general nature and are generated by the management. – Crosby has a similar opinion and considers that 80 percent of the quality problems depend on the system and therefore, managers have to solve them. Generally, they are content to take some steps only after negative events have taken place. They stress the idea that it is necessary to stop a fire and not prevent it. This vew comes from the fact that managers are not aware of the real price that has to be paid for the lack of quality. Once this price has been perceived, it is clear how important it is to use the appropriate methods to improve quality from the

Components	Explanations
	very beginning and permanently.
(xii) Managerial policies	– What does the university/faculty intend to do to improve its management system, and what are the assessment procedures used for the managerial performance of all senior executives and boards? – What does the university/faculty intend to do to develop its communication system? · Improving the way to take and communicate decisions; · Rendering the decision-making process transparent; · Ways to provide and assess an improved organizational environment.

When drafting the strategic plans, two major ideas are taken into account: first, correlating the mission, the objectives, the policies, the activities and the performance indicators, and second, correlating the main activities of a university and its financial management.

Chapter 4

Worked Examples

4.1. EXAMPLE 1 – HOW THE HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND (HEFCE) ALLOCATES ITS FUNDS

A possible model for funds allocation is the model elaborated by the HEFCE. It is "a possible model", in principle, because any model elaborated in a country can only be an inspirational source in elaborating a model for another country. We believe, however, that the HEFCE model is adequate (in an adapted form) especially for countries with limited resources. This model operates with quantifiable parameters, and rigorously uses a formula to determine the amount of money that will be allocated for each university, reducing, in a significant measure, the influence of subjective factors.

All in the following is reproduced according to HEFCE, 2001.

4.1.1. General Presentation

Every March, HEFCE announces the grant for the following academic year to each university and college we fund. The academic year runs from 1 August to 31 July.

This guide describes the principles that underpin the allocation of funding, and explains the components of an institutional grant. It is intended for those working in higher education and for others who wish to understand our funding methods.

HEFCE uses formulae to determine how most of the money is allocated among institutions. These take account of certain factors for each institution, including the number and type of students, the subjects taught, and the amount and quality of research undertaken there. After HEFCE has determined the amount of funding, it is provided in the form of a "block grant" which institutions are free to allocate according to their own priorities within the broad guidelines of HEFCE. HEFCE does not expect institutions to model their internal allocations on its own funding method.

In 1996-1997, HEFCE reviewed the funding methods for teaching and research, after extensive consultation with the higher education sector. The present funding method for research was first used to allocate grants for 1997-1998. The funding method for teaching was introduced for 1998-1999 for higher education institutions (HEIs) and for 1999-2000 for those further education colleges (FECs) which HEFCE funds to provide some higher education.

4.1.2. Background

Periodically, HEFCE advises the Secretary of State for Education and Employment on the funding needs of higher education in England. The actual funding for higher education is decided by the Government and voted by Parliament.

HEFCE is responsible for distributing this money, within broad policy guidelines provided by the Secretary of State. In 2001-2002 HEFCE is funding 132 HEIs, and 221 FECs that provide higher education courses.

Institutions are accountable to the Council, and ultimately to Parliament, for the way they use Council funds. They are independent bodies and are free to raise money from other sources. This possibility gives them scope to pursue activities alongside those for which they receive Council funds.

HEIs receive funding from many different public and private sources. The HEFCE is the largest single source of income for the higher education sector. The proportion of the total income of an institution allocated by the HEFCE will depend on its activities and money raised from other sources.

After Council grants, tuition fees are usually the other major source of funding for teaching. Since 1998-1999, United Kingdom or European Union (EU) students starting full-time undergraduate courses programmes have been required to pay an annual tuition fee. The fee level (£1,075 for 2001-2002) represents about a quarter of the average cost of tuition. Fees are means tested by students' Local Education Authorities (LEAs) so that those from poorer families are exempt, or pay only a proportion. The Student Loans Company (SLC) pays any public contribution towards the fee.

Public funds for research in universities and colleges are also provided by the Office of Science and Technology. These are distributed by the Research Councils, and support research projects and some postgraduate students. The Arts and Humanities Research Board (AHRB) similarly supports research projects and some postgraduate students in the arts and humanities. In what follows, reference to "Research Councils" includes the AHRB.

HEFCE allocates funds to each university or college to support teaching, research, and related activities. In so doing, HEFCE aims to:

- increase opportunities for students from all types of backgrounds to benefit from higher education;
- maintain and enhance the quality of teaching and research;
- encourage universities and colleges to work with business and the community;
- support diversity;
- encourage efficiency in the use of public funding;
- provide stability in funding from year to year;

Funds for teaching and research are provided as block grants. Institutions are free to distribute this grant internally at their own discretion, so long as it is used to support teaching, research, and related activities.

MEDICAL AND DENTAL EDUCATION AND RESEARCH

Government funding of medical and dental education and research is distributed through a partnership between the HEFCE and the National Health Service (NHS). HEFCE-allocated funds underpin teaching and research in university medical schools, while NHS funds support the clinical facilities needed to carry out these activities in hospitals and other parts of the health service. Funding for health-related subjects such as nursing and midwifery comes from the NHS.

TEACHER EDUCATION AND TRAINING

The Teacher Training Agency (TTA) provides funding for education and training courses aimed at school teachers. In particular, it funds initial teacher training courses leading to qualified teacher status (QTS) and in-service education and training courses for teachers who hold QTS. The HEFCE funds other teacher education and training provision outside the schools sector.

HIGHER EDUCATION IN FURTHER EDUCATION COLLEGES

The HEFCE is responsible for funding courses at FECs on which the students are aiming for certain higher education qualifications. These are: higher degrees (such as Masters qualifications); the Postgraduate Certificate in Education (PGCE); first degrees (BA, BSc, BEd); Higher National Diplomas and Certificates (HND and HNC); Diploma in Higher Education (DipHE); and Certificate in Education (CertEd). Other higher education courses at FECs, such as professional courses, are at present fundable by the new Learning and Skills Council (LSC) which replaced the Further Education Funding Council (FEFC) in April 2001.

4.1.3. The Annual Funding Cycle

Each year, HEFCE divides the total funds between teaching, research, and special funding. The breakdown for 2001-2002 is shown below.

Table 25. Breakdown of HEFCE funding in 2001-2002 – total £4,757 million

Teaching	£3,162 million
Research	£888 million
Special funding	£627 million
Rewarding and developing staff in HE	£80 million

Most of these funds are distributed by formulae, which take account of the volume and mix of the teaching and research of individual institutions. HEFCE publishes the data on which calculations are based, so that institutions can check the outcomes each year.

Each autumn, the Secretary of State for Education and Employment confirms the total grant to be allocated to the HEFCE for the following year, and gives guidance on spending priorities. HEFCE then determines the grants to individual institutions between December and February each year (see Figure 2). Each December, universities and colleges provide the Council with a breakdown of their student numbers, together with information on research activities.

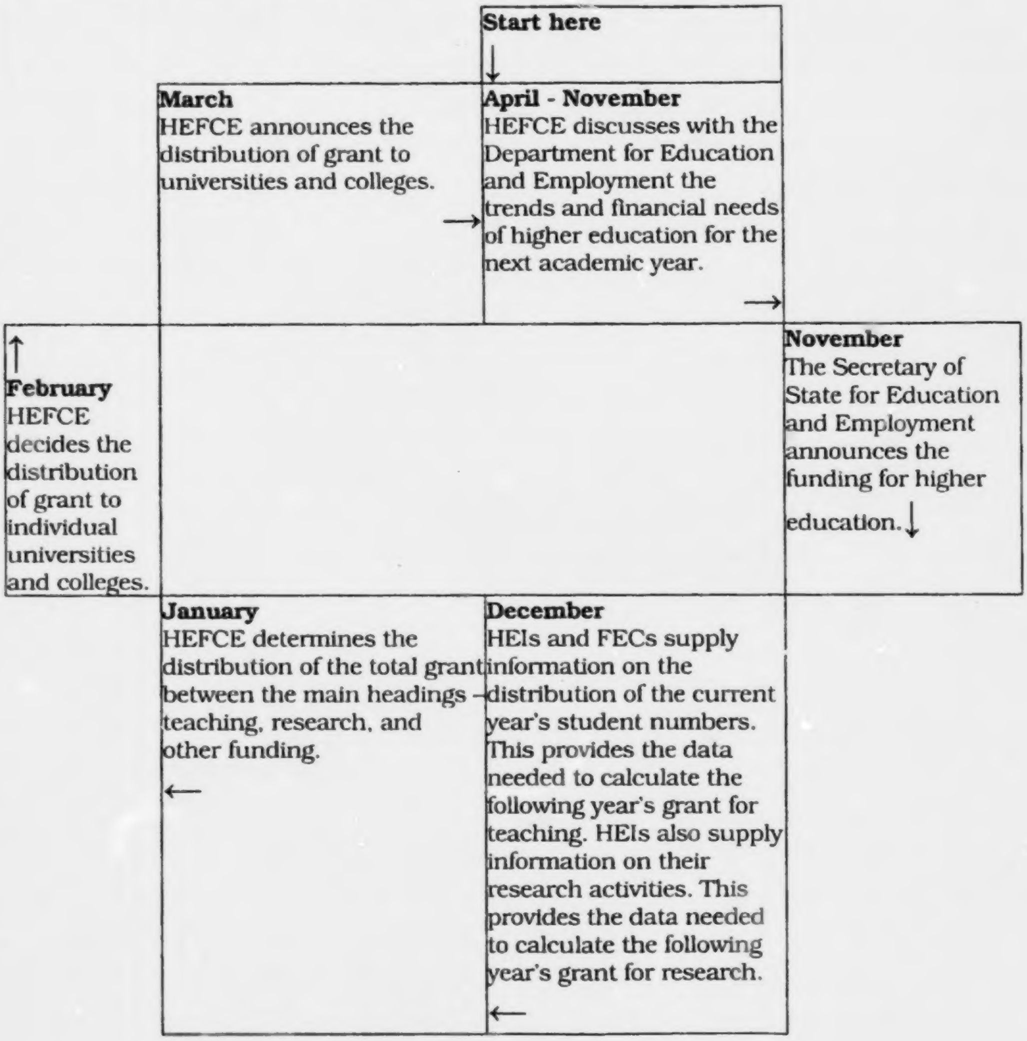
The main data return, the Higher Education Students Early Statistics Survey (HESES) collects information about the number of students studying at each HEI. A similar return is provided by further education colleges – the Higher Education in Further Education: Students Survey (HEIFES).

4.1.4. Funds for Teaching

This part of the guide is divided into three sections:

- general funding principles
- overview of the funding method
- detailed description of the method.

Figure 7. The annual funding cycle of the Higher Education Funding Council for England



Start here ↓

April - November
HEFCE discusses with the Department for Education and Employment the trends and financial needs of higher education for the next academic year. →

November
The Secretary of State for Education and Employment announces the funding for higher education. ↓

December
HEIs and FECs supply information on the distribution of the current year's student numbers. This provides the data needed to calculate the following year's grant for teaching. HEIs also supply information on their research activities. This provides the data needed to calculate the following year's grant for research. ←

January
HEFCE determines the distribution of the total grant between the main headings – teaching, research, and other funding. ←

↑ **February**
HEFCE decides the distribution of grant to individual universities and colleges.

March
HEFCE announces the distribution of grant to universities and colleges. →

a. GENERAL FUNDING PRINCIPLES

In distributing the funds, HEFCE aims to meet the needs of students, employers, and the nation by promoting high quality teaching.

HEFCE introduced its method to allocate funds for teaching in 1998-99. The previous method provided stability for institutions, but in some cases gave varying levels of funding for different institutions for historical rather than educational reasons. With its current method, HEFCE aims to provide fairer funding for students.

The method was developed in consultation with universities and colleges. It funds similar activities at similar rates for all institutions, and ensures that any variations are for explicit and justifiable reasons. In addition, it supports its policy to increase opportunities for a wide range of people to enter higher education. It takes account of the extra costs of providing for certain types of student, such as part-time students and mature undergraduates, and supports diversity by recognizing the extra costs of specialist colleges.

The method also allows institutions to bid for additional funded students according to criteria that HEFCE determines each year.

In addition to our main teaching funding method, HEFCE has made separate allocations to recognize the additional costs of recruiting and supporting students under-represented in higher education or with disabilities. These allocations to widen participation, which will be described later, recognize the success of institutions in recruiting these categories of students. Allocations total £ 42 million for 2001-2002.

b. OVERVIEW OF THE FUNDING METHOD

Institutions receive teaching funds in the form of HEFCE grant and student fees. Full-time undergraduate students may receive assistance with their fees from the Government based on their financial circumstances. Postgraduate students in taught courses pay fees to institutions mostly from their own funds. Fees for most postgraduate research students are paid by the Research Councils. More than a third of the fees for part-time students are paid by employers. Students from outside the European Union are expected to meet the full costs of their courses.

The combined total of grant and tuition fees is referred to as teaching resource or simply as resource.

Resource = HEFCE grant + tuition fees.

CALCULATING THE GRANT

In calculating HEFCE teaching funds for each university and college, there are four main stages:

Stage 1: HEFCE calculates a *standard resource* for the institution. It is a notional calculation of what the institution would get if the grant were calculated afresh each year. It is based on each institution's profile of students, and takes into account:

- the number of students
- subject-related factors
- student-related factors
- institution-related factors.

Stage 2: HEFCE calculates the *actual resource* for the institution. This is based on the teaching grant which HEFCE actually paid to the institution for the previous year, adjusted for various factors such as inflation, plus our assumptions of student tuition fee income.

Stage 3: HEFCE compares the *standard resource* with the *actual resource* and works out the percentage difference between them.

Stage 4: If the difference between the standard resource and the actual resource is no more than 5 per cent (whether that is plus 5 per cent or minus 5 per cent), then the HEFCE grant will be carried forward from one year to the next. For institutions outside the plus or minus 5 per cent *tolerance band*, HEFCE will adjust their grant and/or student numbers so that they move to within the tolerance band over a specified period.

Each stage is described in more detail below.

c. DETAILED DESCRIPTION OF THE METHOD

Stage 1: Calculating the Standard Resource

Student Numbers and Volume of Teaching Activity

The students who count towards HEFCE teaching grant calculations are, broadly, those home and EU students who are enrolled in higher education courses programmes open to any suitably qualified candidate and who are not funded from other public sources. Categories of students which HEFCE does not fund through its allocations for teaching include overseas students from outside the EU, and students whose funding is provided from public sources such as the NHS or the TTA. In addition, full-time postgraduate research (PGR) students in years 2 and 3, and part-time postgraduate research students in years 3 to 6, are funded only through the HEFCE funding method for research.

Student numbers are counted in full-time equivalent (FTE) terms. A part-time student is measured by comparing his or her learning activity with that of a full-time student, so that each will count as a variable proportion of one FTE. Students who undertake practical work or industrial experience for a year outside the university or college (known as sandwich year-out students) are counted at the rate of 0.5 FTE per student for that year.

In determining the standard funding of an institution for the coming year, HEFCE counts the students recruited the previous year, and adds on any student numbers awarded in the competition for additional places for the coming year.

Premiums

Clearly there are factors such as the types of student, and the nature of the subject, that call for different levels of resource. To take account of these factors, HEFCE attaches funding premiums when it calculates the standard resource for each institution. They relate to:

- the subject

- the student
- the institution.

Subject-Related factors

Different subjects require different levels of resource: some subjects need laboratories and workshops while others are taught wholly in lecture theaters and seminar rooms. There are four broad groups of subjects (price groups) for funding, and HEFCE has set relative cost weights for each based on sector averages. These cost weights are translated into levels of resource which depend on the total amount of money available each year.

Table 26. HEFCE price groups

Price group	Description	Cost weight
A	The clinical stages of medicine and dentistry courses and veterinary science	4.5
B	Laboratory-based subjects (science, pre-clinical stages of medicine and dentistry, engineering, and technology)	2
C	Subjects with a studio, laboratory, or fieldwork element	1.5
D	All other subjects	1

HEFCE has used data on actual spending patterns by HEIs, and separate studies of higher education provision in FECs to work out the size of the cost weights.

Student and Institutional Premiums

Having weighted the student numbers by their subject price group, HEFCE then applies further weightings to take account of student or institutional factors.

The student premiums, which apply for 2001-2002, are:

- *Part-time students*: There are extra costs associated with part-time students. For example, the institution's administrative costs for two part-time students, each equivalent to 0.5 FTE, will be higher than for one full-time student.

- *Mature students*: Mature full-time undergraduates often need extra support, as they return to studying (HEFCE defines mature students as being 25 or over on entry).
- *Students on long courses*: Some courses are taught over longer periods than others within the year and so cost more. Courses that last 45 weeks or more within one academic year attract a premium. This does not apply to courses in price group A, where the course length has already been taken into account within the cost weight.

The institutional premiums, which apply for 2001-2002, are:

- *The London premium*: HEFCE pays a premium towards the higher costs of operating in London.
- *Pensions*: Some institutions are paid a premium for staff pensions because of the higher costs of their pension schemes.
- *Specialist institutions*: Some specialist institutions (defined as having 60 per cent or more of their courses in one or two subjects only) have higher costs.
- *Small institutions*: Small institutions (defined as having 1,000 FTEs or fewer) often carry disproportionately high central and administrative costs.
- *Old and historic buildings*: Institutions with old and historic buildings (constructed before 1914) have higher costs to cover, for example, maintenance, refurbishment and heating.

The following table shows the way HEFCE applies the student and institutional premiums.

Table 27. HEFCE application of student and institutional premiums

	Calculated as:	Qualifying institutions
Student premiums		
Part-time students	5% of the unweighted FTE	HEIs and FECs
Mature students	5% of the unweighted FTE	HEIs and FECs
Students on long courses	25% of the FTE weighted by price group	HEIs and FECs
	Calculated as:	Qualifying institutions
Institutional premiums		
London premium	8% (inner London) or 5% (outer London) of the FTE weighted by price group	HEIs and FECs
Pensions	2% of the FTE weighted by price group	HEIs only
Specialist institutions	Variable percentage (usually 10%) of the FTE weighted by price group	HEIs only
Small institutions	Variable percentage of the unweighted FTE	HEIs only
Old and historic buildings	Variable percentage of the unweighted FTE	HEIs only

Calculating the Standard Resource

HEFCE calculates a basic amount of funding for a full-time student by dividing all the money available to fund teaching (its grant plus tuition fees) by the total number of weighted FTE students in the sector. This basic rate of funding (grant plus fee) is called the base price and is the basic rate (that is the rate for a standard FTE) in price group D. For 2001-2002, the base price is £ 2,805.[1]

The total weighted FTEs for an institution are the sum of the FTEs weighted by price group, plus the student and institutional premiums.

The standard resource for an individual institution is its total weighted student FTEs multiplied by the base price.

Stage 2: Calculating the actual resource

For each institution, HEFCE starts with the HEFCE grant for teaching it received the previous year. It then makes the following adjustments:

59

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[1] The base price therefore implies resource rates for each price group of £12,623 for price group A, £5,610 for price group B, £4,208 for price group C and £2,805 for price group D.

Grant Adjustments

- *Adjust funding when institutions have failed to meet the requirements of their funding agreement.* This situation usually arises because institutions are unable to recruit or retain the numbers of students for which the previous year's grant was allocated.
- *Adjust for increases owing to inflation* within the total funds provided by the Government.
- *Add any funding for additional students.* The Government wants to expand the higher education sector. Each year, over the next few years, HEFCE will be providing funds to the sector for extra students. HEFCE allocates additional places in response to bids from institutions and funds them at standard resource rates (excluding the contribution assumed to come through tuition fees).

Fee Adjustment

Add an assumed income from tuition fees paid by students, Research Councils, local education authorities, employers, and so on.

Table 28. The HEFCE assumed fee income per FTE for 2001-2002

Full-time undergraduates	£1,075 per FTE
Sandwich year-out undergraduates	£1,060 per FTE
Part-time undergraduates	£790 per FTE
Postgraduates on courses with regulated fees (these are courses such as PGCEs and some architecture courses)	£1,075 per FTE
Other postgraduates	£2,805 per FTE

Stage 3: Calculating the percentage difference

The next step is to compare the results of Stage 1, the standard resource, with the results of Stage 2, the actual resource. The percentage difference is calculated as follows:

$$N = \frac{\text{actual resource} - \text{standard resource}}{\text{standard resource}} \times 100$$

The funding method aims to ensure that similar activities are funded at similar rates, in all universities and colleges. Therefore HEFCE does not want to give individual institutions much more or much less money than their standard resource. But at the same time, HEFCE does not want to apply a completely standardized flat rate, but allow some variation around the standard to recognize the varying circumstances and content of courses at different institutions, as well as to permit some flexibility. HEFCE therefore allows a "tolerance band" or difference of 5 per cent above or below the standard resources.

Stage 4: Calculating the Teaching Grant

If an institution is within the tolerance band, HEFCE funding will roll forward from the previous year. In other words, HEFCE will pay the amount calculated in Stage 2, less the assumed income from tuition fees. This principle applies to most universities and colleges.

For institutions, which fall outside the tolerance band, HEFCE takes action to bring them within the band. This action may be by increasing or reducing student numbers, or by adjusting funding.

Annex A offers more detailed descriptions of the calculations of standard resource, assumed fee income, and the comparison between standard and actual resources.

d. THE FUNDING AGREEMENT

A funding agreement, also referred to as Part 2 of the Financial Memorandum, is drawn up each year between an institution and the HEFCE.

The funding agreement is constructed in broad terms. It implies a weighted volume of activity which is being funded against the resources being allocated.

Institutions can vary their recruitment as long as the weighted volume of activity is maintained within certain implied limits. So, for example, they may vary the balance of recruitment between full-time and part-time students or between different price groups. When the funding announcements are made, well ahead of the start of the relevant academic year, institutions cannot be sure about their recruitment in that year. It may be less than expected, the balance between subjects may vary, or the number of students not completing the academic year may deviate from expectations. In most cases, such deviation does not affect their grant. However, if recruitment results in the actual resource varying by more than 5 per cent from standard resource, then action is taken to draw the institution back within that tolerance band. This would be achieved by adjusting student numbers or funding in the current and/or subsequent years.

When HEFCE provides funding for additional places in response to bids from institutions, HEFCE expects them to increase their student numbers. HEFCE therefore sets them a target for their overall FTE students. If they recruit below the target, HEFCE reduces the funding they have provided for their bid. However, HEFCE gives institutions a second chance to deliver the expected increases, recognizing that start-up difficulties may prevent full recruitment in the first year.

The Council sets minimum numbers for students for some medical and dental courses. If institutions fall short of the minimum numbers, the grant is reduced.

The Government requires HEFCE to control the numbers of certain types of student to ensure that public expenditure limits are not breached. These are, broadly, home and EU full-time undergraduates, and all students on initial teacher training courses. For each institution HEFCE sets a Maximum Student Number (MaSN) for such students. HEFCE imposes a one-off penalty for institutions that exceed their MaSN beyond a permitted margin. The penalty is equivalent to the tuition fee for these extra students so that institutions do not benefit financially from their over-recruitment.

The Government also has a policy to increase recruitment to foundation degree and course programmes below degree level. Many institutions were successful in bidding to HEFCE for additional places on such courses for 2001-2002, so HEFCE expects their recruitment to such courses to show an appropriate increase compared with 2000-2001.

e. OTHER ELEMENTS OF TEACHING FUNDS

Outside the main funding method for teaching of HEFCE, the Council also allocates funding each year to recognize the additional costs of recruiting and supporting students under-represented in higher education or who have disabilities. HEFCE identifies these students using the individual student records provided to the Higher Education Statistics Agency (HESA).

Students under-represented in higher education are defined as those who come from neighbourhoods with below-average participation. HEFCE uses a geodemographic classifier to assign each student to one of 160 neighbourhood types, based on their home postcode. HEFCE weights the students according to the HE participation rate of each neighbourhood type. Those neighbourhoods with the lowest participation rates generate the highest weightings, while those with above average participation have weighting of zero. The funding provided reflects the success of institutions in recruiting and retaining students from neighbourhoods with below average participation.

Funding to widen access for students with disabilities reflects the proportion of students that each institution recruits who are in receipt of the Disabled Students Allowance (DSA). This is an allowance paid by LEAs to assist students who can show that they have a disability or medical condition that affects their ability to study.

For the first time in 2001-2002, HEFCE will also be providing a new funding stream to institutions with less than

80 per cent of students from state schools or further education colleges. This is to support appropriate outreach work to raise the aspirations of state educated pupils to attend the institution from which they will derive the maximum benefit.

4.1.5. Other Related Funding

4.1.5.1. SPECIAL FUNDING

HEFCE recognizes that not all teaching, research, and related activities can be adequately supported through formula funding. Each year, HEFCE provides special funding for a wide range of purposes. These funds are reviewed regularly and, wherever appropriate, new initiatives are introduced or the funds are phased out or incorporated into formula-based allocations. In 2001-2002, special funding amounted to £627 million. This total included additional earmarked funding for capital announced following the Government's 2000 spending review.

Special funding covers a variety of strategic areas as well as support for national facilities, capital funding, and inherited activities.

Table 29. 2001-2002 HEFCE special funding: main elements

	Funding in £ millions
Strategic	
Learning and teaching	43
Access and participation	21
Research	21
Business and the community	28
Sector	32
International	10
Strategic total	155
National facilities	55
Inherited activities	96
Capital	
From recurrent funding	77
Earmarked	240
Capital total	317
Value for money, research, and development	4
Total	627

HEFCE has established programmes to channel funding to strategic priority areas. These programmes support the development of learning and teaching strategies and the adoption of best teaching practice. They fund collaborative projects in regions to widen participation in higher education. They develop, with the Department of Trade and Industry, the capabilities of HEIs to respond to the needs of business and the community. They assist HEIs with collaboration and restructuring projects for the benefit of the whole sector.

The national facilities include funding for the AHRB and for investment in the national IT infrastructure, including the Joint Academic Network and national data sets, through the Joint Information Systems Committee of the funding councils.

The amount of special funding for inherited activities (those inherited from previous funding councils) continues to decline. The intention of HEFCE is to continue to reduce this call on its resources so that those funds can be released to other priority activities.

In 2001-2002, half of special funding, including additional earmarked capital funding, addressed past under-investment in the sector, or inherited capital problems. Capital programmes include the poor estates initiative; the Joint Infrastructure Fund; and specific teaching, IT, and research projects in all HEIs.

Increasingly, special funding programmes – particularly for capital projects – are moving away from bidding exercises. Instead HEFCE is determining allocations and outcomes against which HEIs can set their own priorities. This helps reduce the burden of transaction costs on HEIs.

4.1.5.2. REWARDING AND DEVELOPING STAFF IN HIGHER EDUCATION

The pay levels and terms and conditions of employment for academic and other staff employed by HEIs are matters for the HEIs themselves to determine. However, they are expected to follow public sector pay policy by taking account of fairness, affordability, and the need to recruit, motivate, and retain staff. Staff salaries are met through the block grant.

The funding for higher education announced following the Government's 2000 spending review included £330 million of additional specific funding over 2001-2002 to 2003-2004 to reward and develop staff in higher education. These funds are to be used in part to recruit and retain high quality academic staff in strategically important disciplines or areas, and to help modernize the management processes in the sector.

HEFCE intends to distribute these funds to HEIs in proportion to their combined basic recurrent HEFCE grants for teaching and research (its proposals were set out in HEFCE 00/56, "Rewarding and developing staff in higher education". Funding, which for 2001-2002 totals £80 million, would be released once HEIs had provided human resource strategies addressing certain priority areas. HEIs would be free to determine their own objectives, and specific targets would be monitored through their annual operating statements.

4.1.5.3. MODERATION

To help maintain stability, HEFCE phases in changes by moderating increases or decreases in teaching and research funding to institutions that would otherwise be affected by large fluctuations. The amount of moderation funding HEFCE allocated in 2001-2002 totaled £8.9 million, as was distributed to 12 universities and colleges.

ANNEX A. FUNDING FOR TEACHING – EXAMPLES

Calculating the Standard Level of Resource

There are five steps to calculating standard resource:

- Step 1 Collect FTE student data in each category
- Step 2 Weight the FTEs in Step 1 by the appropriate price group cost weights
- Step 3 Calculate additional FTEs for each of the student and institutional premiums which apply
- Step 4 Calculate total weighted FTEs
- Step 5 Calculate standard resource

STEP 1: COLLECT FTE STUDENT DATA IN EACH CATEGORY

HEFCE disaggregates students according to 48 different categories (24 categories[2] for FECs):

four price groups (subjects)
x two modes (full-time and sandwich, or part-time)
x three levels (undergraduate, postgraduate taught or postgraduate research)
x two lengths of study during the year (standard or long).

We perform the calculations of standard resource separately for each of these student categories.

STEP 2: WEIGHT THE FTES IN STEP 1 BY THE APPROPRIATE PRICE GROUP COST WEIGHTS

Weighted FTEs = FTE from Step 1 x price group weight (4.5 for price group A, 2[3] for price group B, 1.5 for price group C and 1 for price group D)

STEP 3: CALCULATE ADDITIONAL FTES FOR EACH OF THE STUDENT AND INSTITUTIONAL PREMIUMS WHICH APPLY

The premiums are expressed as additional weighted FTEs, calculated in relation to either the unweighted FTEs (from Step 1) or the price group weighted FTEs (from Step 2), depending on whether the additional cost which the premium seeks to reflect varies according to the subjects being studied.

- Long course premium: If the course is long, and the student FTE is in price groups B, C, or D, the additional FTEs = price group weighted FTEs (Step 2) x 0.25. If the course is standard length, and/or the student FTE is in price group A, the additional FTEs = zero.

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[2] FECs have three price groups (B,C and D), two modes, two levels (undergraduate or postgraduate), and two lengths of study.

[3] For FECs, a varying proportion of the student data that they record in price group B will be funded as price group B provision, with the balance being funded as price group C. The proportions were determined following reviews to identify higher cost provision at each college.

- Part-time premium: If the course is part-time, the additional FTEs = unweighted FTEs (Step 1) x 0.05. If the course is full-time or sandwich, the additional FTEs = zero.
- Mature full-time undergraduate students premium: If the student FTE is full-time or sandwich undergraduate, the additional FTEs = unweighted FTEs (Step 1) x proportion of full-time or sandwich students who are mature x 0.05. We calculate the proportion of students who are mature from individual student records. Students are counted as mature if they are at least 25 years old on entry. For all part-time or postgraduate students, the additional FTEs = zero.
- London premium: If the institution is based in London, the additional FTEs = price group weighted FTEs (Step 2) x either 0.08 (if in inner London) or 0.05 (if in outer London). For institutions outside London, the additional FTEs = zero.
- Pensions premium (HEIs only): If the institution is part of the Universities Superannuation Scheme, the additional FTEs = price group weighted FTEs (Step 2) x 0.02. For all other institutions, the additional FTEs = zero.
- Specialist college premium (HEIs only): If the institution is eligible for the premium, the additional FTEs = price group weighted FTEs (Step 2) x a variable percentage. This percentage depends on the particular characteristics of the institution, but is commonly 10 per cent. Institutions are eligible for the premium if they have at least 60 per cent of their FTEs in no more than two subjects, and if, without the premium, their actual resource would be at least 8 per cent above standard resource. For all other institutions, the additional FTEs = zero.
- Small institution premium (HEIs only): If the institution is eligible for the premium, the additional FTEs =

unweighted FTEs (Step 1) x a variable percentage. Institutions are eligible for the premium if, when it was introduced, they had no more than 1,000 FTEs in total (including any students on further education courses), and they were not already receiving a specialist college premium of more than 10 per cent. The value of the premium in percentage terms is calculated on a sliding scale from 0 to 20 per cent, where the fewer FTEs an institution has, the larger its premium. For all other institutions, the additional FTEs = zero.

- Old and hystoric buildings premium (HEIs only): If the institution is eligible for the premium, the additional FTEs = unweighted FTEs (Step 1) x a variable percentage. Institutions are eligible for the premium if they have buildings (excluding residences for students) constructed before 1914, which they have owned since at least 1 April 1998. The larger the floor space attributable to the old and historic buildings, the larger the value of the premium in percentage terms. For all other institutions, the additional FTEs = zero.

STEP 4: CALCULATE TOTAL WEIGHTED FTES

Total Weighted FTEs = Price Group Weighted FTEs (Step 2) + Additional Weighted FTEs For Each Student or Institutional Premium (Total Step 3).

STEP 5: CALCULATE STANDARD RESOURCE

Standard resource in each category = total weighted FTEs in that category (Step 4) x the base price (£2,805 for 2001-2002). Total standard resource is the sum of the standard resource calculated for each student category.

Having calculated standard resource, HEFCE compares it with actual resource, and expresses the difference between them as a percentage. If the percentage difference is more than 5 per cent, action is taken to bring the institution within the ±5 per cent tolerance band by adjusting its student numbers and/or funding.

WORKED EXAMPLES OF THE TEACHING FUNDING CALCULATIONS FOR HEIs

University V and the Higher Education College W both have 1,200 undergraduate student FTEs, with the same number of FTE students in each of the four price groups A, B, C, and D. In this example, the HEFCE grant is £5,750,000. HE College W is wholly part-time, whereas University V has no part-time students.

The table below shows the effect on the percentage difference of the part-time recruitment.

Both institutions are within the tolerance band so no change in funding or student numbers will be needed.

The table below shows the effect of further premiums applying to the same institutions.

Table 30. Effects of part-time recruitment on teaching funding calculations

Standard resource calculation				(a)	(b)	(c)	(d)	(e)
Institution	Price group	Mode	Level	FTE	Cost weighted FTE	Part-time 5% x (a)	Total weighted FTE = (b) + (c)	Standard resource = (d) x £2,805
University V	A	FTS	UG	200 x 4.5	= 900	0	900	£2,524,500
	B	FTS	UG	300 x 2	= 600	0	600	£1,683,000
	C	FTS	UG	400 x 1.5	= 600	0	600	£1,683,000
	D	FTS	UG	300 x 1	= 300	0	300	£841,500
Total				1,200	2,400	+ 0	=2,400	£6,732,000
College W	A	PT	UG	200 x 4.5	= 900	10	= 910	£2,552,550
	B	PT	UG	300 x 2	= 600	15	= 615	£1,725,075
	C	PT	UG	400 x 1.5	= 600	20	= 620	£1,739,100
	D	PT	UG	300 x 1	= 300	15	= 315	£883,575
Total				1,200	2,400	+ 60	= 2,460	£6,900,300

Resource comparison						
	(f)	(g)	(h)	(i)		
Institution	HEFCE grant	Assumed fee rate per FTE	Assumed fees = (a) x (g)	Actual resource £s = (f) + (h)	Standard resource £s	Percentage difference
University V	£5,750,000	£1,075	£1,290,000	7,040,000	6,732,000	+4.6%
College W	£5,750,000	£790	£948,000	6,698,000	6,900,300	-2.9%

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University V has a pensions premium and 10 per cent of its students are mature. HE College W has a 6 per cent premium for its old and historic buildings.

Table 31. Effects of system premiums applying to the same institutions

Total weighted FTE calculation			(a)	(b)	(c)	(d)	(e)	(f)	
Institution	Price group	Mode	FTE	Cost weighted FTE	Part-time 5% x(a)	Pensions 2% x (b)	Mature 10% x 5% x (a)	Old and historic buildings 6% x (a)	Total weighted FTE sum (b) to (f)
University V	A	FTS	200 x 4.5	= 900	0	18	1	0	= 919
	B	FTS	300 x 2	= 600	0	12	1.5	0	= 613.5
	C	FTS	400 x 1.5	= 600	0	12	2	0	= 614
	D	FTS	300 x 1	= 300	0	6	1.5	0	= 307.5
Total			1,200	2,400	0	48	6	0	2,454
College W	A	PT	200 x 4.5	= 900	10	0	0	12	= 922
	B	PT	300 x 2	= 600	15	0	0	18	= 633
	C	PT	400 x 1.5	= 600	20	0	0	24	= 644
	D	PT	300 x 1	= 300	15	0	0	18	= 333
Total			1,200	2,400	60	0	0	72	2,532

Resource comparison

Institution	Actual resource (as above)	Standard resource	Percentage difference
University V	7,040,000	6,883,470	2.3%
College W	6,698,000	7,102,260	-5.7%

University V is still in the tolerance band, but College W is now below it. We will take action to bring College W within the tolerance band.

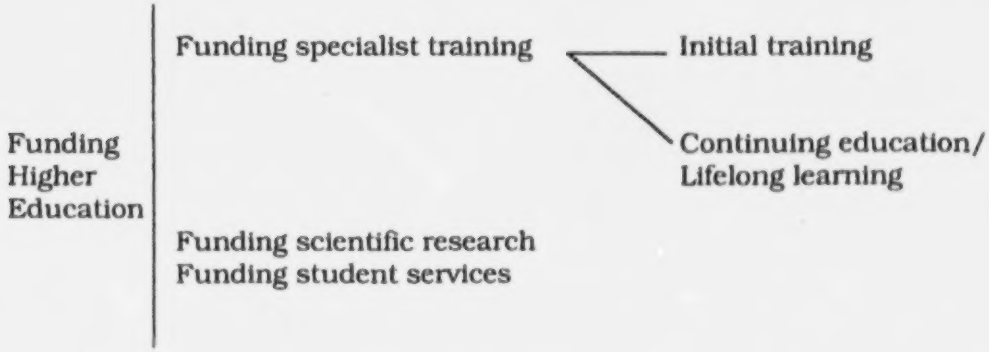
4.2. EXAMPLE 2 - UNIVERSITY FUNDING IN FRANCE

4.2.1. Introduction

The French higher education system consists broadly of four groups of institutions: universities, *grandes écoles*, secondary level institutions, and other schools and institutions (for paramedical, social professions, and a number of professionally oriented schools).

> The universities have a scientific, cultural, and professional character. In addition to the departments, other institutes can attach themselves to the university. There are three types of such attached teaching institutes: the *instituts universitaires de technologie* (IUT), the *instituts universitaires de formation de maîtres* (IUFM), and the *instituts universitaires professionalisés* (IUP).
>
> The public *grandes écoles* comprise a diverse set of institutions. All these institutions are perceived to provide high standard teaching and training. The private Grandes Écoles are engineering schools, institutions dealing with business and commerce, and catholic institutions, recognised by the ministers.
>
> The third group of higher education institutions is formed by the classes at secondary level institutions (*lyceés*). Two types of programmes are offered that are considered to be higher education programmes. These special classes are the *Sections de Techniciens Superieur* (STS) and the *Classes Preparatoires aux Grandes Écoles* (CPGE).
>
> The fourth group of HEIs is formed by a number of schools paramedical and social professions and a number of other schools, all professionally oriented (Kaiser *et al.*, 2001, p. 59).

The state has retained the main responsibility for investment in higher education. Funding higher education in France implies three main directions represented in the following scheme:


Funding Higher Education
Funding specialist training
Initial training
Continuing education/ Lifelong learning
Funding scientific research
Funding student services

4.2.2. *The Legal Framework*

The legal framework for funding universities is defined by the Law of 26 January 1984, which provides the foundation framework for French universities.

FUNDING STRUCTURE

Article 41 - To accomplish their mission, the State provides "research, cultural, and vocational public institutions" (*i.e.*, higher education institutions) equipment, staff, and funding. The institutions have funds the sources of which include bequests, gifts, and foundation grants, payments for services rendered, competitive examination fees, financial contributions of firms for the technical and professional first cycles, and a variety of other grants. They receive tuition fees from enrolled students and auditors. They can receive grants for equipment and the operating budget from the regional, departmental, and local governments.

The Minister of Higher Education, working within the framework set by the planning orientations and the geographical distribution of higher education institutions, and after consultation with the National Council for Higher Education and Research, allocates staffing positions among research, cultural, and vocational public institutions as well as the institutes and schools which are included in this category. He or she takes into account the academic programmes and, sometimes, the contracts passed between institutions and the State as well as national criteria. In the same fashion, the Minister allocates funding to the academic and technical teaching, research, and communication activities; to this effect, he or she allocates subsidies for the running costs and equipment subsidies as a complement to the State's financial initiatives.

Subsidies for the operating budget, which are not included in the civil research budget, are allocated as a block grant.

Article 42 - Each research, cultural, and vocational public institution votes its budget, which must be balanced in real terms and made public. A table showing budget lines and documents describing all the institutional resources that are not part of the budget must be annexed to the budget. The annual accounts of the previous year are published annually by the institution after the board has approved them.

Each sub-unit, school, institute, and central administrative department has its own budget, which is part of the institutional budget. These budgets are approved by the administrative board of the institution, which can veto them if they have not been approved, by the sub-unit board or are not balanced in real terms.

The discussions of the administrative boards related to borrowing, investment, and creation of subsidiary companies are submitted to the approval of the tutelary minister(s) as well as to the Minister of the Economy and Finance and the Minister in charge of the budget.

A decree of the *Conseil d'État* (administrative judicial council) sets the conditions for the application of articles 41 and 42.

Article 48 - Institutions are controlled by the General Inspectorate of the national education ministry. Financial control takes place *a posteriori*; the institutions are checked by the general inspectorate of the finance ministry; their accounts are submitted to the jurisdictional control of the *Cour des Comptes* (state audit office).

The Chief Accountant fulfills his duties according to the public accounting regulations and within the conditions set by decree in the *Conseil d'État* as included in Article 42.

This decree details the situations and conditions under which institutional budgets are submitted for approval, as well as the exceptional actions to be taken when they are not balanced.

4.2.3. The Resources of Higher Education

The resources of higher education institutions are of two kinds

a) The resources supported by public funds, essentially State subsidies for the running costs of teaching and research, which represent 62 percent of the global resources given to institutions in France; for 1994, they totaled 7 billion Francs (excluding salaries).

b) The resources available to each institution through its specific activities are kept entirely by the institution and derive from:

- tuition fees;
- research contracts;
- continuing education;
- taxes on firms;
- capital gains on investments;

In 1994, these represented 4.2 billion Francs. The State, but also the institutions, cannot spend these sums freely. They are, for the most part, earmarked funds, targeted at specific activities, such as contract. The revenues from taxes on firms can only be spent on equipment. A portion of student tuition fees must be spent on libraries, athletic activities, and student aid.

The universities receive around 57 percent of their funds from the state (Table 31). At the public engineering schools, this percentage is lower (46 percent) and at the teacher training colleges it is higher (76 percent). Research income is relatively high at engineering schools (15 percent); at universities (including IUTs) it is only 5 percent. Compared to 1990, the part of state funds has risen from 52 percent to 56.7 percent.

Table 32: Sources of income of French public higher education institutions: 1997 (millions of French Francs)

	Universities		Engineering schools		IUFM	
MENRT teaching	5962	43%	676	36%	600	71%
MENRT research	1110	8%	100	5%	0	0%
Other ministries	847	6%	80	4%	41	5%
Local authorities	711	5%	87	5%	44	5%
Droits universitaires (tuition)	1374	10%	83	4%	49	6%
Taxe d'apprentissage	299	2%	92	5%	0	0%
Research income	764	6%	276	15%	0	0%
Recurrent teaching income	1033	7%	88	5%	0	0%
Other income	1774	13%	385	21%	108	13%

Source: MENRT, 1999.

c) It is important to make a further distinction regarding resource allocation. State subsidies for the provision of teaching and the general operation of an institution are given as a block grant. It is up to the administrative board of an institution to decide on its internal allocation. Conversely, research subsidies are individualized and targeted at each laboratory, after it has been evaluated. To fund overhead costs, the institution can decide to levy up to 15 percent on these subsidies and on research contracts.

d) Academic and non-academic staff positions are centrally managed by the State which pays the salaries. Staff positions are allocated to institutions. In their staffing requests, however, the institutions define the qualifications for the positions to be filled (grade, discipline, specialty) and select the staff, under the control of discipline-based national commissions which check the validity and quality of the selections.

e) Contractual policy was initiated by Lionel Jospin in 1989. In 1998, the concept was relaunched. The aim of this contractual policy is both to give genuine new autonomy to universities and to allow the state to exercise fully its responsibility to boost and to coordinate activity in higher education. Each establishment draws up a four-year development plan corresponding both to national objectives and to local training needs. The plan covers all the activities in the establishment (teaching, research, internationalization, management, etc.), regarding all actors (students, staff, public authorities, and external parties). The plan is addressed to the appropriate department of the Ministry, and then negotiated with it. The contract is not a legal contract but has to be seen as a set of mutual, explicit, and formalized engagements (Kaiser *et al.*, 2001, p. 64).

4.2.4. *Institutional Expenditures*

In 1994, institutional expenditures represented 10.8 billion Francs, which were distributed as follows:

- 27 percent for technical staff recruited directly by the institutions;
- 47 percent for the operating budget;
- 26 percent for capital investment (mostly libraries and scientific equipment).

4.2.5. *Funding Allocation*

The allocation of funding is decided by the State (Ministry in charge of higher education and research and the Finance Ministry) after the Parliament votes the budget.

The allocation of funding must be transparent: the criteria and the analytical method are published, and the institutions informed.

The Ministry uses two instruments to allocate funds:

i. The *Observatoire des Coûts* (Observatory of Costs), an independent research team which analyzes the real cost of each degree in a sample of institutions;

ii. The SAN REMO system (automatic national system for funding allocation) defines the theoretical funding allocation of an institution, based on the average costs of degrees, number of students enrolled, teaching load required, and staffing (academic, administrative and technical) potential.

The allocation criteria (by means of the SAN REMO software) are the following:

i) analysis of the positions of potential professors-researchers as well as of the non-academic positions, then a comparison between the existing potential and a theoretical model;

ii) allocating the financial means based on the difference obtained so as to achieve:

- 100 percent coverage of the needs of the first cycles (DEUG)
- 70 percent coverage of the needs of the professional networks (30 percent being complementary hours)
- 80 percent coverage of the needs of the remaining networks (20 percent being complementary hours)

The operating subsidies are given to an institution as a block grant.

Some subsidies, however, are given separately: these are subsidies for new buildings and their maintenance (building upkeep and safety), libraries, or specific initiatives that the government wishes to promote.

Private higher education institutions may receive public funds if they are recognized by the state. The amount of funding and their destination is part of a contract between the higher education institution and the state.

4.2.6. Financial and Accounting Departments

Within each higher education institution, *the financial and accounting department* prepares the budget (*i.e.*, the resource allocation, given the expenditure projection for each unit), follows its execution, and controls the validity and legality of budget operations. The university president is the principal officer who can authorize expenditures.

Some sub-units within a university enjoy budgetary autonomy (*e.g.*, the technological university institutes, engineering schools or institutes, medical faculties), and must design their own budgets.

All financial decisions must be voted by the administrative board.

A new financial and accounting instrument is being put in place: NABUCO (new budgetary and accounting application). It determines a hierarchy of "centres of decisions and responsibilities":

- the first level is that of the presidency;

- the second level is that of the large units: UFR (faculties), IUT (technological university institutes), or schools;
- the third level can be a single degree, laboratory, service or department.

NABUCO not only represents the introduction of a computer product, but also the structuring of the decision-making process, because the university must make policy decisions to determine who is responsible for-what with regard to resources allocation and expenditures.

4.2.7. Internal and External Financial Control Mechanisms

Within an institution, control is exercised *a posteriori*. The Chief Accountant is personally responsible (his personal assets and salary can be seized) in case of errors or embezzlement. The annual financial accounts – which detail all revenues and expenditures following a system set by the State – are controlled by the Ministry. Institutions can be referred to two inspectorates: the General Inspection of national education and the *Cour des Comptes* (state audit office). In exceptional cases (if the administrative board refuses to vote the budget, or if the budget is unbalanced), the rector, for short periods of time, can manage the university financially.

4.2.8. Research Funding System

Research credits are assigned to universities following the approach given below:

a) defining general trends, definition given by MENRT and major research bodies (CNRS, INSERM, etc)

These general trends, that are established for a period of four years, are defined in close co-operation with the senior executives of Academic Research within the Ministry and the major research bodies with a view to reaching coherence over these trends.

b) assessing the quality of the teams:

It is carried out according to the criteria specific to either of the two cases cited below:

i) *Academic laboratories acknowledged* by major research institutions (CNRS, INSERM, INRA, etc). The scientific assessment structures existing within (such as, the Scientific Committee of CNRS) carry out the assessment according to:

- number of publications in refereed journals;
- number of PhD students for the assessed domain;
- number of international conferences attended by the members of the team as invited guests.

ii) Teams belonging to laboratories established within universities but unacknowledged to major research bodies:
They are assessed by scientific teams under the auspices of MENRT that assess the following:

- number of publications in referenced journals;
- number of PhD students for the assessed domain;
- the tendency to teach the results of the research carried out in laboratories, mainly at the level of Advanced Studies courses (DEA).

iii) *Assessing the extent to which research is turned to value* – that is whether or not there are projects in existence to turn research to value, and whether this is done with a public or private enterprise.

Positively assessed teams get their subsidies from MENRT and the major research bodies.

Lastly, there are *young teams*, deemed worthy of receiving support and who also receive, to a lesser extent, some financial assistance from the Ministry and the national research institutions.

4.2.9. Main Sources of the Research Funding System

There are three main categories of providers of resources for R&D activities: *administrations* (public authorities), enterprises, and sources from abroad.

The public financial support for research at university-based laboratories or research groups is supplied by:

- the higher education part of the research budget;
- the CNRS budget;
- other national research councils.

According to Kaiser *et al.*, (2001), *Grandes Écoles* and non-profit organizations receive a relatively small part of their resources as core funding by the state. Their proportion of other sources, especially their own resource is therefore relatively high (see Table 33).

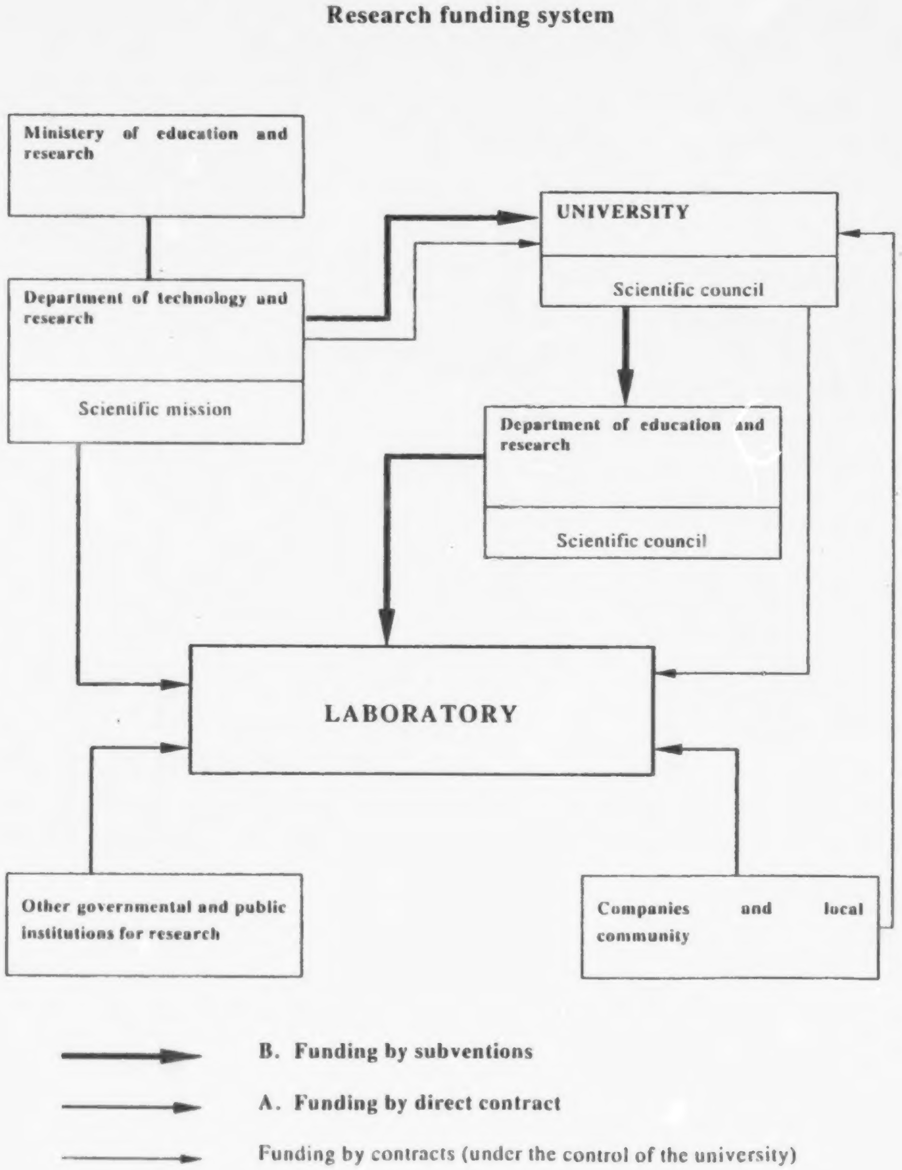
Table 33. The distribution of R&D resources by sources of funding

	Core funding	Own resources	Contracts
Higher education institutions	81%	4%	15%
CNRS	90%	4%	6%
Grandes écoles	51%	17%	33%
Universities	77%	3%	20%
Public research institutes	81%	4%	15%
EPST	85%	5%	10%
EPIC	76%	5%	20%
Other	91%	1%	8%
Non-profit organizations	23%	40%	38%
Defense	100%		
Total	84%	4%	12%

Source: MENRT, 1997.

The research office within the Ministry of Education (*Direction de la Recherche et des etudes doctorales* - DRED) is responsible for the implementation of the contractual policy for research. Research contracts for periods of four years imply the award of research credits directed to the research teams. These teams apply for various research projects funded. The projects are evaluated by the scientific directions of DRED. According to the *a posteriori* analysis carried out by French specialists, this policy has proved to be more advantageous since the integration of the research contracts within institutional contracts that began in 1995.

Figure 8. The French research funding system


Research funding system
Ministery of education and research
Department of technology and research
Scientific mission
UNIVERSITY
Scientific council
Department of education and research
Scientific council
LABORATORY
Other governmental and public institutions for research
Companies and local community
B. Funding by subventions
A. Funding by direct contract
Funding by contracts (under the control of the university)

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4.3 REMARKS

i. Europe displays a great diversity in the way universities are organized. There is no "Western model". To want to "copy" such a model is proof of naïvité and ignorance. Dynamic universities have *invented* their own models. This way is probably the only way to go. There is no British or French model of a university, but a wide range of managerial organizations both in France and in the United Kingdom. Universities will have to do the same, designing a *national variety* of ways to manage a university. It is universities themselves that bear the responsibility for such a change.

ii. The United Kingdom and France are dominated by two essentially different cultures – roughly speaking, a liberal type of culture, and, respectively, a socialist (social democratic) one. These two macro systems of values have been strengthened by two relatively recent events that have directly influenced the *current* format of the university: the workers' and students' movements that occurred in France in 1968 (which generated a reform in education shifting it to the left) and post-1979 Thatcherism in the United Kingdom (which generated a reform to the right). Therefore, currently, education in France is mainly assisted by the state, even though it carries all the capitalist values inside, while the higher education in the United Kingdom is mainly entrepreneurial, market-oriented.

iii. Despite these differences, there are essential common features of all *successful universities*, both in the United Kingdom and in France. These features may even be the very cause of their respective successes. Here are some of them:

- A *strong board*:

  A limited, strong central board (Board of Directors/Council, plus a President (rector) and his cabinet). It is a flexible type of management that is controlled (not substituted) by collective management bodies. It is the only way for the board to be able to construct a *project* of the university and to monitor it.

- This firm central management is combined, under various proportions and formats, with a basic autonomy, manifested especially in *drafting specific development policies* (for faculties, departments, UFRs).
- Everything is supported by a *strong administration*, numerous enough, well articulated, centralized, and *highly professional*. Academic management is a job in itself, not a secondary job done by some academics. In all successful Western universities, academic management is a profession exercised by a category of pure professionals.

– An interface developed towards the environment outside the university (industry, banks, research institutes, etc) "Manufacturing Group" developed this interface at Warwick University, while the same dynamics is active in France owing to the contracts with CNRS and the "laboratories". The universities have gotten involved in various refresher courses and in distance learning programmes, which provide not only a more diversified offer depending on social needs, but also a significant share of the resources.

– *Ever larger revenues coming from sources outside the budget* account for 63 percent at the University of Warwick, and for 51 percent at Paris VI. With the University of Coventry, such revenue accounts for 20 percent of the budget, but this university does not in the least rank among the first British universities.

– A *basic* dynamic structure, essentially trans-disciplinary and market-oriented (the concept of "faculty" has been abandoned in favour of wider and more integrated structures such as "Schools" in the United Kingdom and "UFR" in France). Such a structure facilitates research adjusted to external needs, a more effective financial management, while it is easier for graduates to find employment. Funds coming from outside sources are not collected by a specialized department (even if this solution is also possible). It is an activity shared by all departments. Departments at Warwick University have turned into research centers that sell their products, and they operate following a *business plan*. To put it in a nutshell, the faculties are not inert entities, attached to some central services, but are autonomous, thus providing the dynamism of the university.

- *And finally* – Here is an apparent difference: the United Kingdom is dominated by an *openly competitive* academic culture, resulting in official hierarchies of universities and differentiated financing. In France, hierarchies and inter-university competition are less visible. But if we take a closer look, we shall see that in France as well there is a culture of competition, but it is *implicit*, the hierarchies are implicit, and generally unknown to the public (the number of CNRS "laboratories" within universities or the system of *Grandes Ecoles)*. Still, at the level of the administration, these hierarchies are operational. In both systems, scientific research gets additional and differentiated financing (via the Research Assessment Exercise in the United Kingdom or via the CNRS financing system in France).

Annexes

Annex 1a. Number of students by level of education and sex, for the 1970-1996 period, in a selected number of European countries

Country	Year	TOTAL	Pre-primary	Primary	Pre-primary and primary		Secondary								Higher education			
			MF	F	MF	F	Overall	Female	% Primary	% Female	Overall	Female	% Secondary	% Female	Overall	Female	% HE	% Female
Albania	1970	569,516	47,524		496,523	235,429	544,047	235,429	95.53	43.27					25,469	8,275	4.47	32.49
	1980	823,575	92,490		552,651	260,895	645,141	260,895	78.33	40.44	163,866	73,288	19.90	44.72	14,568	7,221	1.77	49.57
	1985	854,052	110,603		543,775	258,600	654,378	258,600	76.62	39.52	177,679	80,174	20.80	45.12	21,995	9,995	2.58	45.44
	1990	909,134	130,007		551,294	265,552	681,301	265,552	74.94	38.98	205,774	92,061	22.63	44.74	22,059	11,384	2.43	51.61
Austria	1970	1,487,406	120,359	58,924	531,934	258,631	652,293	317,555	43.85	48.68	775,335	360,092	52.13	46.44	59,778	17,547	4.02	29.35
	1980	1,640,266	165,611	81,262	400,397	195,074	566,008	276,336	34.51	48.82	937,484	433,494	57.15	46.24	136,774	57,491	8.34	42.03
	1985	1,545,808	181,582	88,540	343,823	166,176	525,405	254,716	33.99	48.48	847,188	394,872	54.81	46.61	173,215	78,593	11.21	45.37
	1990	1,517,078	194,829	94,633	370,210	180,416	565,039	275,049	37.25	48.68	746,272	349,612	49.19	46.85	205,767	94,004	13.56	45.68
	1995	1,632,753	220,314	106,708	382,005	185,451	602,319	292,159	36.89	48.51	791,453	375,011	48.47	47.38	238,981	115,657	14.64	48.40
	1996	1,641,078	225,034	108,909	381,927	185,240	606,961	294,149	36.99	48.46	793,485	377,559	48.35	47.58	240,632	117,274	14.66	48.74
Belarus	1970	2,273,425	220,191		948,800	...	1,168,991		51.42	0.00	818,300	...	35.99		286,134	...	12.59	
	1980	2,195,100	345,300		750,300	...	1,095,600		49.91	0.00	759,700	...	34.61		339,800	...	15.48	
	1985	2,262,800	407,100		796,600	...	1,203,700		53.20	0.00	716,700	...	31.67		342,400	...	15.13	
	1990	2,337,884	419,600		614,800	...	1,034,400		44.25	0.00	968,200	...	41.41		335,284	...	14.34	
	1995	2,350,600	349,500	159,400	632,100	303,100	981,600	462,500	41.76	47.12	1,055,200	...	44.89		313,800	168,000	13.35	53.54
	1996	2,353,846	335,400	153,600	625,000	298,300	960,400	451,900	40.80	47.05	1,064,700	...	45.23		328,746	182,200	13.97	55.42
Belgium	1970	2,328,773	458,702	224,709	1,021,511	495,752	1,480,213	720,461	63.56	48.67	723,703	350,036	31.08	48.37	124,857	45,231	5.36	36.23
	1980	2,257,749	383,955	188,248	842,117	409,890	1,226,072	598,138	54.31	48.78	835,524	415,108	37.01	49.68	196,153	86,947	8.69	44.33
	1985	2,194,632	391,848	191,208	730,288	357,486	1,122,136	548,694	51.13	48.90	824,997	405,651	37.59	49.17	247,499	113,120	11.28	45.71
	1990	2,139,401	374,343	182,180	719,372	353,668	1,093,715	535,848	51.12	48.99	769,438	377,568	35.97	49.07	276,248	133,339	12.91	48.27
	1995	2,588,142	428,134	208,239	742,796	360,419	1,170,930	568,658	45.24	48.56	1,058,998	535,324	40.92	50.55	358,214	178,833	13.84	49.92
Bulgaria	1970	1,800,110	331,960	164,847	1,049,829	510,001	1,381,789	674,848	76.76	48.84	318,725	154,125	17.71	48.36	99,596	50,445	5.53	50.65
	1980	1,830,934	420,804	204,002	994,018	482,258	1,414,822	686,260	77.27	48.51	314,753	151,529	17.19	48.14	101,359	56,946	5.54	56.18
	1985	1,929,734	360,395	174,649	1,080,979	523,816	1,441,374	698,465	74.69	48.46	374,565	183,214	19.41	48.91	113,795	62,035	5.90	54.51
	1990	1,844,489	303,779	148,397	960,681	461,907	1,264,460	610,304	68.55	48.27	391,550	194,979	21.23	49.80	188,479	96,807	10.22	51.36
	1995	1,695,045	254,234	123,370	433,926	209,193	688,160	332,563	40.60	48.33	756,549	366,315	44.63	48.42	250,336	155,226	14.77	62.01
	1996	1,674,924	247,015	118,909	431,790	208,089	678,805	326,998	40.53	48.17	733,362	356,083	43.78	48.55	262,757	161,049	15.69	61.29
Croatia	1985	835,782	69,374	33,250	520,576	253,823	589,950	287,073	70.59	48.66	189,946	95,451	22.73	50.25	55,886		6.69	0.00
	1990	760,414	70,396	34,097	431,586	209,524	501,982	243,621	66.01	48.53	186,090	95,012	24.47	51.06	72,342		9.51	0.00
	1995	777,827	66,105	31,580	207,890	101,096	273,995	132,676	35.23	48.42	417,475	206,433	53.67	49.45	86,357	42,117	11.10	48.77
	1996	788,407	81,893	39,103	203,933	99,124	285,826	138,227	36.25	48.36	416,829	205,490	52.87	49.30	85,752	43,563	10.88	50.80
Czech Republic	1970	2,035,613	258,567	131,869	672,455	329,503	931,022	461,372	45.74	49.56	1,025,567	512,334	50.38	49.96	79,024	28,446	3.88	36.00
	1980	1,228,620	463,565	231,783	647,029	317,044	1,110,594	548,827	90.39	49.42			0.00		118,026	47,661	9.61	40.38
	1985	2,394,687	432,067	216,034	694,659	333,436	1,126,726	549,470	47.05	48.77	1,160,863	583,895	48.48	50.30	107,098	44,843	4.47	41.87
	1990	2,283,846	352,139	169,236	545,814	266,845	897,953	436,081	39.32	48.56	1,267,699	609,574	55.51	48.09	118,194	51,562	5.18	43.62

Country	Year	TOTAL	Pre-primary	Primary	Pre-primary and primary		Secondary								Higher education			
			MF	F	MF	F	Overall	Female	% Primary	% Female	Overall	Female	% Secondary	% Female	Overall	Female	% HE	% Female
	1995	2,266,161	342,161	166,772	541,671	262,665	883,832	429,437	39.00	48.59	1,190,725	591,073	52.54	49.64	191,604	89,654	8.46	46.79
	1996	532,775	325,554	158,251			325,554	158,251	61.11	48.61			0.00		207,221	100,315	38.89	48.41
Denmark	1970	947,032	20,874	10,109	443,031	218,569	463,905	228,678	48.99	49.29	407,103	...	42.99		76,024	27,895	8.03	36.69
	1980	1,102,756	62,936	30,864	434,635	211,959	497,571	242,823	45.12	48.80	498,944	242,206	45.25	48.54	106,241	51,923	9.63	48.87
	1985	1,063,287	56,735	27,743	402,707	196,825	459,442	224,568	43.21	48.88	487,526	237,437	45.85	48.70	116,319	57,380	10.94	49.33
	1990	999,373	51,583	25,208	340,267	166,582	391,850	191,790	39.21	48.94	464,555	228,598	46.48	49.21	142,968	74,385	14.31	52.03
	1995	1,159,479	209,005	101,705	336,690	164,181	545,695	265,886	47.06	48.72	438,809	217,156	37.85	49.49	174,975	94,452	15.09	53.98
Estonia	1980	223,158	65,953		131,705	63,851	197,658	63,851	88.57	32.30			0.00		25,500	14,000	11.43	54.90
	1985	355,224	66,711		138,573	67,084	205,284	67,084	57.79	32.68	126,440	...	35.59		23,500	14,000	6.62	59.57
	1990	359,441	71,689	34,842	127,389	61,739	199,078	96,581	55.39	48.51	134,463	...	37.41		25,900	13,000	7.21	50.19
	1995	332,390	54,658	26,484	125,718	60,763	180,376	87,247	54.27	48.37	112,288	57,911	33.78	51.57	39,726	20,889	11.95	52.58
	1996	222,143	31,875	25,069	126,800	61,282	178,675	86,351	80.43	48.33			0.00		43,468	23,233	19.57	53.45
F. R. of Yugoslavia	1995	1,617,812	177,350	85,709	449,192	218,396	626,542	304,105	38.73	48.54	831,758	408,882	51.41	49.16	159,512	84,919	9.86	53.24
	1996	1,607,247	182,125	87,986	437,780	212,893	619,905	300,879	38.57	48.54	815,029	404,613	50.71	49.64	172,313	92,697	10.72	53.80
Finland	1970	981,154	25,464	12,740	386,230	183,459	411,694	196,199	41.96	47.66	509,691	259,281	51.95	50.87	59,769	28,916	6.09	48.38
	1980	1,009,834	64,000	...	373,347	181,879	437,347		43.31	0.00	449,322	232,244	44.49	51.69	123,165	59,356	12.20	48.19
	1985	1,007,488	76,097	...	379,339	185,229	455,436		45.21	0.00	424,076	224,125	42.09	52.85	127,976	62,467	12.70	48.81
	1990	1,069,565	86,400	...	390,587	190,330	476,987		44.60	0.00	426,864	227,534	39.91	53.30	165,714	86,468	15.49	52.18
	1995	1,163,904	104,662	51,224	384,369	187,922	489,031	239,146	42.02	48.90	460,878	243,788	39.60	52.90	213,995	112,748	18.39	52.69
	1996	1,192,019	114,696	55,998	380,932	186,207	495,628	242,205	41.58	48.87	469,933	244,760	39.42	52.08	226,458	119,653	19.00	52.84
France	1970	12,235,631	2,213,346	1,083,050	4,939,683	2,412,399	7,153,029	3,495,449	58.46	48.87	4,281,446	2,189,968	34.99	51.15	801,156	...	6.55	
	1980	13,084,209	2,383,465	1,163,500	4,610,361	2,235,963	6,993,826	3,399,463	53.45	48.61	5,013,666	2,677,574	38.32	53.41	1,076,717	...	8.23	
	1985	13,329,484	2,563,464	1,247,108	4,115,846	1,986,129	6,679,310	3,233,237	50.11	48.41	5,371,593	2,730,395	40.30	50.83	1,278,581	643,429	9.59	50.32
	1990	13,925,627	2,555,684	1,246,014	4,149,143	2,010,219	6,704,827	3,256,233	48.15	48.57	5,521,862	2,770,286	39.65	50.17	1,698,938	902,557	12.20	53.12
	1995	14,638,078	2,500,867	1,220,391	4,065,005	1,969,585	6,565,872	3,189,976	44.85	48.58	5,980,518	2,907,777	40.86	48.62	2,091,688	1,147,202	14.29	54.85
	1996	14,498,099	2,451,210	1,196,391	4,004,704	1,945,763	6,455,914	3,142,154	44.53	48.67	5,979,690	2,910,884	41.24	48.68	2,062,495	1,133,990	14.23	54.98
Germany	1995	16,542,654	2,332,924	1,119,301	3,804,887	1,847,085	6,137,811	2,966,386	37.10	48.33	8,260,674	3,969,119	49.94	48.05	2,144,169	955,856	12.96	44.58
	1996	16,717,252	2,343,520	1,135,740	3,859,490	1,872,778	6,203,010	3,008,518	37.11	48.50	8,382,335	4,037,044	50.14	48.16	2,131,907	975,448	12.75	45.75
Greece	1970	1,600,632	87,087	42,239	907,446	435,422	994,533	477,661	62.13	48.03	520,323	222,953	32.51	42.85	85,776	26,976	5.36	31.45
	1980	1,907,739	145,924	71,173	900,641	435,000	1,046,565	506,173	54.86	48.37	740,058	337,816	38.79	45.65	121,116	50,204	6.35	41.45
	1985	2,043,249	160,079	78,152	887,735	429,906	1,047,814	508,058	51.28	48.49	813,534	387,134	39.82	47.59	181,901	88,963	8.90	48.91
Hungary	1970	1,889,132	227,279	109,368	1,115,993	538,310	1,343,272	647,678	71.11	48.22	465,324	198,219	24.63	42.60	80,536	34,432	4.26	42.75
	1980	2,098,803	478,100	230,493	1,162,203	565,243	1,640,303	795,736	78.15	48.51	357,334	165,679	17.03	46.37	101,166	50,314	4.82	49.73
	1985	2,244,163	424,678	206,606	1,297,818	632,567	1,722,496	839,173	76.75	48.72	422,323	205,114	18.82	48.57	99,344	53,188	4.43	53.54
	1990	2,138,248	391,129	187,805	1,130,656	551,952	1,521,785	739,757	71.17	48.61	514,076	251,505	24.04	48.92	102,387	51,507	4.79	50.31
	1995	2,214,521	400,527	193,779	507,238	245,923	907,765	439,702	40.99	48.44	1,112,149	552,511	50.22	49.68	194,607	103,536	8.79	53.20

Country	Year	TOTAL	Pre-primary	Primary	Pre-primary and primary		Secondary								Higher education			
			MF	F	MF	F	Overall	Female	% Primary	% Female	Overall	Female	% Secondary	% Female	Overall	Female	% HE	% Female
Italy	1970	10.954.536	1.586.785	777.874	4.856.953	2.351.309	6.443.738	3.129.183	58.82	48.56	3.823.556	1.701.137	34.90	44.49	687.242	259.015	6.27	37.69
	1980	12.719.096	1.870.477	917.854	4.422.888	2.150.146	6.293.365	3.068.000	49.48	48.75	5.307.989	2.550.177	41.73	48.04	1.117.742	476.028	8.79	42.59
	1985	11.910.977	1.660.986	805.727	3.703.108	1.800.587	5.364.094	2.606.314	45.03	48.59	5.361.579	2.607.247	45.01	48.63	1.185.304	545.902	9.95	46.06
	1990	11.178.760	1.552.694	759.111	3.055.883	1.485.252	4.608.577	2.244.363	41.23	48.70	5.117.897	2.498.371	45.78	48.82	1.452.286	690.490	12.99	47.55
	1995	10.882.276	1.582.556	757.931	2.816.128	1.360.754	4.398.684	2.118.685	40.42	48.17	4.708.406	2.298.154	43.27	48.81	1.775.186	939.752	16.31	52.94
	1996	10.889.226	1.584.283	764.227	2.810.158	1.362.849	4.394.441	2.127.076	40.36	48.40	4.602.243	2.244.975	42.26	48.78	1.892.542	1.021.815	17.38	53.99
Norway	1970	738.467			385.628	197.323	385.628	197.323	52.22	51.17	302.792	147.053	41.00	48.57	50.047	15.135	6.78	30.24
	1980	908.268	78.189	...	390.186	190.252	468.375		51.57		360.776	180.226	39.72	49.96	79.117	37.831	8.71	47.82
	1985	916.475	98.454	...	335.373	163.832	433.827		47.34		387.990	194.162	42.34	50.04	94.658	49.233	10.33	52.01
	1990	962.082	139.350	...	309.432	150.737	448.782		46.65		370.779	184.225	38.54	49.69	142.521	75.542	14.81	53.00
	1995	1.043.071	177.593	88.796	320.752	156.366	498.345	245.162	47.78	49.20	364.343	172.935	34.93	47.46	180.383	99.720	17.29	55.28
	1996	1.067.552	183.539	91.769	330.619	161.337	514.158	253.106	48.16	49.23	368.074	176.073	34.48	47.84	185.320	104.224	17.36	56.24
Romania	1970	4.138.537	448.244	224.483	2.878.693	1.417.540	3.326.937	1.642.023	80.39	49.36	659.715	275.189	15.94	41.71	151.885	65.353	3.67	43.03
	1980	5.584.821	935.711	461.084	3.308.462	1.610.063	4.244.173	2.071.147	75.99	48.80	1.147.879	513.192	20.55	44.71	192.769	82.113	3.45	42.60
	1985	5.592.344	864.332	426.792	3.030.666	1.476.503	3.894.998	1.903.295	69.65	48.87	1.537.548	711.018	27.49	46.24	159.798	71.658	2.86	44.84
	1990	5.036.379	752.141	375.347	1.253.480	613.352	2.005.621	988.699	39.82	49.30	2.837.948	1.379.805	56.35	48.62	192.810	91.021	3.83	47.21
Russian Federation	1980	30.403.000	5.703.000	...	6.009.000	2.956.000	11.712.000		38.52		12.991.000	...	42.73		5.700.000	3.200.000	18.75	56.14
	1985	31.808.000	6.488.000	...	6.579.000	3.244.000	13.067.000		41.08		13.341.000	...	41.94		5.400.000	3.100.000	16.98	57.41
	1990	33.694.000	7.042.000	...	7.596.000	3.737.000	14.638.000		43.44		13.956.000	...	41.42		5.100.000	2.800.000	15.14	54.90
Slovakia	1995	1.278.336	163.710	...	338.767	165.713	502.477		39.31		684.306	333.236	53.53	48.70	91.553	45.424	7.16	49.61
	1996	1.279.159	170.138	...	329.880	156.934	500.018		39.09		677.377	329.135	52.95	48.59	101.764	51.100	7.96	50.21
Slovenia	1985	407.716	68.544	32.441	116.016	...	184.560		45.27		193.555	...	47.47		29.601	15.643	7.26	52.85
	1990	421.088	66.484	31.575	112.134	...	178.618		42.42		208.905	...	49.61		33.565	18.668	7.97	55.62
	1995	415.426	54.716	25.942	100.764	49.206	155.480	75.148	37.43	48.33	212.038	104.736	51.04	49.39	47.908	27.005	11.53	56.37
	1996	418.998	54.191	25.852	98.866	48.060	153.057	73.912	36.53	48.29	212.458	105.077	50.71	49.46	53.483	29.987	12.76	56.07
Spain	1970	6.924.883	819.914	419.583	3.929.569	1.959.526	4.749.483	2.379.109	68.59	50.09	1.950.496	814.673	28.17	41.77	224.904	60.051	3.25	26.70
	1980	9.466.584	1.182.425	583.030	3.609.623	1.753.535	4.792.048	2.346.565	50.62	48.97	3.976.747	1.979.208	42.01	49.77	697.789	304.838	7.37	43.69
	1985	10.101.963	1.127.348	555.852	3.483.948	1.681.536	4.611.296	2.237.388	45.65	48.52	4.555.541	2.304.983	4510	50.60	935.126	459.105	9.26	49.10
	1990	9.792.230	994.322	491.140	2.820.497	1.366.826	3.814.819	1.857.966	38.96	48.70	4.755.322	2.396.541	48.56	50.40	1.222.089	623.868	12.48	51.05
	1995	9.607.568	1.098.693	534.736	2.799.960	1.348.298	3.898.653	1.883.034	40.58	48.30	4.117.052	2.111.816	42.85	51.29	1.591.863	840.524	16.57	52.80
	1996	9.356.443	1.117.343	544.098	2.702.553	1.305.266	3.819.896	1.849.364	40.83	48.41	3.852.102	1.934.449	41.17	50.22	1.684.445	890.357	18.00	52.86

Source: *UNESCO Statistical Yearbook 1999*, from «www.http://unescostat.unesco.org/statsen/statistics/yearbook..; *World Education Report 2000*, *UNESCO's World Education Indicators*, Appendices II and III of WER 2000, Regional Tables (1-14) and Country Tables (1-11). From: «http://www.unesco.org/education/information/wer/htmlENG/».

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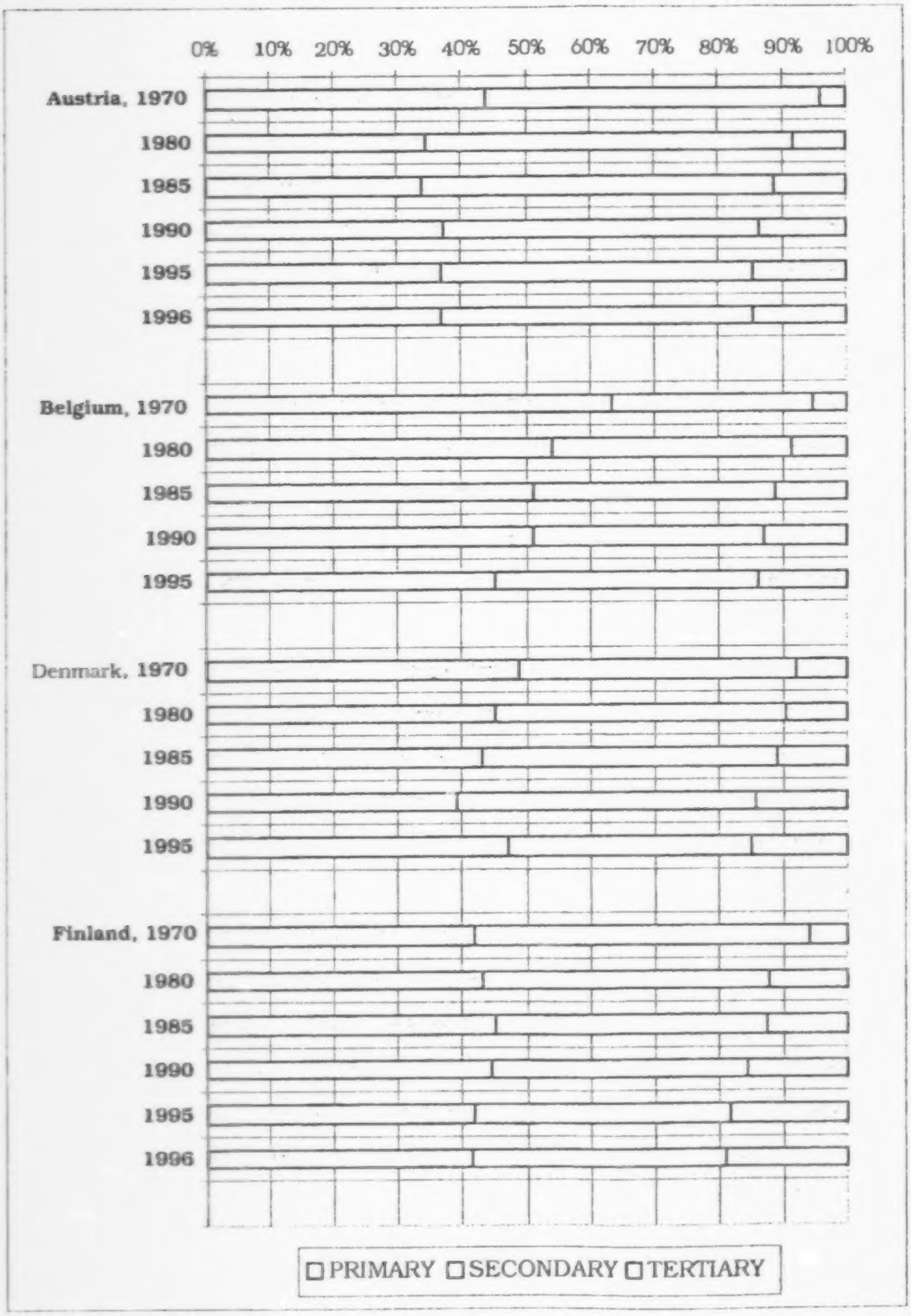
Annex 1b. Number of students by level of education, programme orientation, intensity of participation, and age, in OECD countries, for the 1999-2000 academic year

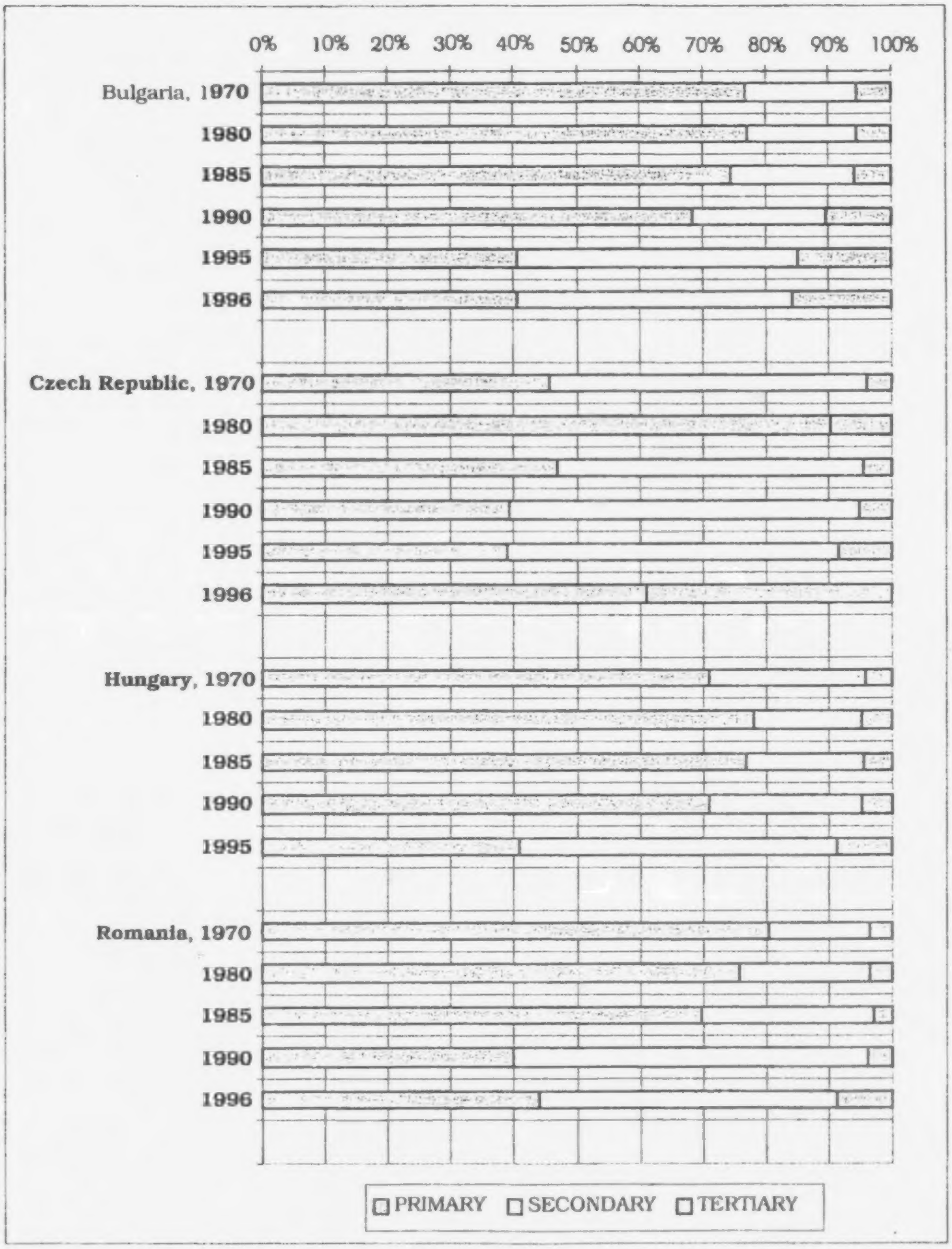
OECD Education database
Number of students by level of education, programme orientation, intensity of participation, sex and age
Selected criteria:
Countries: Austria, Belgium, Belgium (Flemish Community), Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea (Republic of), Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States
Level of education: Total tertiary education
Intensity of participation: Full-time and part-time
Age: All ages
Sex: Total males + females
Year: 1999

Country	Enrollment
Austria	252,893
Belgium	351,788
Czech Republic	231,224
Denmark	189,970
Finland	262,890
Germany	2,087,044
Belgium (Flemish Community)	190,826
France	2,012,193
Canada	1,192,570
Iceland	8,462
Norway	187,482
Poland	1,399,090
Spain	1,786,778
Korea, Republic of	2,837,880
United Kingdom	2,080,962
Austria	252,893
Luxembourg	2,717
United States	13,769,361
Japan	3,940,756
Greece	387,859
Hungary	279,397
Ireland	151,137
Mexico	1,837,884
Italy	1,797,241
Turkey	1,464,740
New Zealand	167,308
Belgium	351,788
Portugal	356,790
Sweden	335,124
Netherlands	469,885
Switzerland	156,390

Sources: OECD DATABASE, 2002, at «http://www1.oecd.org/scripts/cde/viewdb.asp?DBNAME=EDU_UOE&DBICON=%2Ficons%2Foecd%2Egif»

Annex 2: Percentage of students by level of education, for the 1970–1996 period, in a selected number of European countries





Source: UNESCO Statistical Yearbook 1999, from www. http://unescostat.unesco.org/statsen/ statistics/yearbook; *World Education Report 2000, UNESCO's World Education Indicators*, Appendices II and III of WER 2000, Regional Tables (1 – 14) and Country Tables (1 – 11), at «http://www.unesco.org/education/information/ wer/htmlENG/».

Annex 3a. Gross enrollment ratios in higher education, for the 1970 – 1996 period, in a selected number of European countries

Country	1970	1980	1985	1990	1995	1996
Albania (1996)	14.1	5.1	7.2	6.9	12.0	12.0
Austria	12.0	21.9	26.4	35.2	47.4	48.3
Belarus		38.9	44.8	47.6	42.3	43.8
Belgium	17.0	26.0	32.2	40.2	56.3	
Bulgaria	14.3	16.2	18.9	31.1	39.4	41.2
Croatia		19.0	17.7	23.9	28.3	27.9
Czech Republic		17.3	15.8	16.0	21.8	23.5
Denmark	18.9	28.3	29.1	36.5	48.2	
Estonia		24.5	24.2	26.0	38.1	41.8
F. R. of Yugoslavia					20.5	
Finland	13.1	32.2	34.1	48.9	70.4	74.1
France	18.8	25.3	29.8	39.6	51.0	51.0
Germany				33.9	46.1	47.2
Greece	13.1	17.1	24.2	36.1	42.3	46.8
Hungary	9.4	14.1	15.4	14.0	23.6	
Iceland		20.4	21.1	24.9	35.4	37.5
Ireland	11.9	18.1	22.3	29.3	39.6	41.0
Italy	16.7	27.0	25.5	32.1	42.3	46.9
Latvia		23.6	22.7	25.0	27.2	33.3
Lithuania		34.7	32.5	33.8	28.2	31.4
Luxembourg	1.5	2.6	2.6		9.3	9.9
Malta	5.9	3.2	5.8	13.0	26.0	29.3
Moldova		29.6	32.8	35.5	25.3	26.5
Netherlands	19.6	29.3	31.8	39.8	48.0	47.3
Norway	15.9	25.5	29.6	42.3	58.6	62.0
Poland	13.2	18.1	17.1	21.7	24.7	
Portugal	6.6	10.7	12.3	23.2	38.8	
Romania	9.3	12.1	10.0	9.7	18.3	22.5
Russian Federation		46.2	53.7	52.1	42.9	
Slovakia				16.1	20.2	22.1
Slovenia		20.2	21.2	24.5	34.5	36.1
Spain	8.7	23.2	28.5	36.7	47.8	51.4
Sweden	21.8	30.8	30.0	32.0	46.7	50.3
Switzerland	10.2	18.3	21.0	25.7	32.6	
Rep. of Macedonia		27.5	24.0	16.8	18.9	19.5
Ukraine		41.6	46.8	46.6	41.7	
United Kingdom	14.4	19.1	21.7	30.2	49.6	52.3

Source: *UNESCO Statistical Yearbook 1999*, Education and Literacy, Gross enrollment ratios by level of education, Table II.S, from www. http://unescostat.unesco.org/statsen/statistics/yearbook; *World Education Report 2000, UNESCO's World Education Indicators*, Appendices II and III of WER 2000, Regional tables (1 – 14) and Country tables (1 – 11), at «http://www.unesco.org/education/information/wer/htmlENG/».

Annex 3b.Total public expenditure on education

Direct public expenditure on educational institutions plus public subsidies to the private sector (including subsidies for living costs, and other private entities) as a percentage of GDP and as a percentage of total public expenditure, by level of education and year.

	Public expenditure on education as a percentage of total public expenditure				Public expenditure[1] on education as a percentage of GDP			
	1998			1995	1998			1995
	Primary, secondary, and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined	Primary, secondary, and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined
OECD countries								
Australia	10.2	3.6	13.9	13.4	3.5	1.2	4.8	5.0
Austria	7.8	3.2	12.2	12.0	4.0	1.6	6.3	6.5
Belgium	6.9	2.2	10.2	m	3.5	1.1	5.2	m
Belgium (Fl.)	m	m	m	m	3.4	1.0	5.0	5.2
Canada	8.2	3.9	12.6	12.9	3.7	1.8	5.7	6.5
Czech Republic	6.3	1.8	9.3	8.7	2.9	0.8	4.3	4.9
Denmark	8.8	3.9	14.8	13.1	4.9	2.2	8.3	7.7
Finland	7.6	4.0	12.4	12.1	3.8	2.0	6.2	6.9
France	7.9	2.0	11.3	11.1	4.2	1.0	6.0	6.0
Germany	6.3	2.3	9.8	8.6	3.0	1.1	4.6	4.7
Greece	4.6	2.1	6.9	5.2	2.3	1.1	3.5	2.9
Hungary	7.8	2.4	12.4	12.2	2.9	0.9	4.6	5.0
Iceland	10.8	5.6	17.8	m	4.3	2.2	7.1	m
Ireland	9.9	3.5	13.5	13.0	3.3	1.1	4.5	5.1
Italy	7.1	1.6	10.0	8.7	3.5	0.8	4.9	4.6
Japan	m	m	m	m	2.8	0.4	3.5	m
Korea	12.7	1.8	16.5	m	3.1	0.4	4.1	m
Luxembourg	m	m	m	m	m	m	m	m
Mexico	16.2	4.5	22.4	22.4	3.0	0.8	4.2	4.6
Netherlands	6.8	3.0	10.6	9.1	3.1	1.4	4.9	5.0
New Zealand	m	m	m	m	4.9	1.8	7.2	5.7
Norway	9.7	4.2	16.1	18.4	4.6	2.0	7.7	9.1
Poland	7.8	2.7	12.2	11.5	3.5	1.2	5.4	5.5
Portugal	10.2	2.4	13.5	12.5	4.3	1.0	5.7	5.4
Spain	8.1	2.2	11.1	10.6	3.3	0.9	4.5	4.7
Sweden	9.1	3.6	13.7	m	5.3	2.1	8.0	m
Switzerland	10.8	3.0	14.6	m	4.1	1.1	5.5	m
Turkey	m	m	m	m	1.8	0.8	3.0	2.4
United Kingdom	8.3	2.6	11.9	11.2	3.4	1.1	4.9	5.2
United States[2]	m	m	m	m	3.4	1.3	5.1	m
Country mean	8.7	3.0	12.9	11.9	3.6	1.3	5.3	5.4

	Public expenditure on education as a percentage of total public expenditure				Public expenditure[1] on education as a percentage of GDP			
	1998			1995	1998			1995
	Primary, secondary, and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined	Primary, secondary, and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined
WEI participants								
Argentina	m	m	m	m	2.8	0.9	4.1	m
Brazil[4]	7.9	2.9	12.0	m	3.1	1.1	4.7	m
Chile	12.1	2.7	16.1	m	2.7	0.6	3.6	m
India[2]	m	m	m	m	2.0	m	m	m
Indonesia[5]	5.7	1.2	6.9	m	1.2	0.3	1.5	m
Israel	m	m	m	m	5.2	1.4	7.9	7.6
Jordan	m	m	m	m	4.1	m	m	m
Malaysia	8.9	4.4	14.0	m	3.0	1.5	4.8	m
Paraguay	15.8	4.4	20.2	m	3.5	1.0	4.5	m
Peru	15.7	4.6	22.5	m	2.0	0.6	2.9	m
Philippines[4]	16.2	2.9	19.7	m	2.9	0.5	3.5	m
Thailand	14.6	6.6	27.2	m	2.5	1.1	4.7	m
Tunisia[5]	m	m	m	m	5.4	1.5	6.8	m
Uruguay	8.5	2.6	12.2	m	1.9	0.6	2.7	m
Zimbabwe[2]	m	m	m	m	9.2	1.6	10.8	m

m = missing

1. Public expenditure presented in this table includes public subsidies to households for living costs, which are not spent on educational institutions. Thus the figures presented here exceed those on public spending on institutions found in Table B1.1.

2. Post-secondary non-tertiary is included in tertiary education and excluded from primary, secondary and post-secondary non-tertiary education.

3. Public subsidies to the private sector are excluded.

4. Year of reference 1997.

5. Year of reference 1999.

*See Annex 3 for notes.

Source: OECD.

Annex 4. Gross enrollment ratios in higher education, for the 1970 – 1999 period, as compared to the global average, European average, and the average of a group of countries which are comparable in terms of level of economic development

Year	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
World total	9.2	10.7	12.3	12.9	13.8	14.1	14.4	15.2	15.6	16.2	16.9	17.4		
Europe	14.4	19.9	29.3	31.7	35.9	36.6	37.9	39.6	40.3	41.0	42.1	42.8		
Developing Countries	2.9	3.9	5.2	6.7	7.1	7.2	7.5	7.9	8.4	9.1	9.8	10.3		
Least Developed Countries	1.0	1.2	1.8	2.5	2.5	2.6	2.9	2.9	3.0	3.0	3.1	3.2		
Developed Countries	26.1	33.5	36.2	38.6	44.5	46.0	46.9	49.1	49.7	50.1	51.0	51.6		
Romania	9.3	8.9	12.1	10	9.7	10.7	16.1	18.7	19.7	18.3	22.5	22.7	25.4	28.0

Source: UNESCO Statistical Yearbook 1999, Education and Literacy, Gross enrollment ratios by level of education, Table II.S, from www. http://unescostat.unesco.org/statsen/statistics/yearbook; *World Education Report 2000, UNESCO's World Education Indicators*, Appendices II and III of WER 2000, Regional tables (1 – 14) and Country tables (1 – 11, at «http://www.unesco.org/education/information/wer/htmlENG/».

Annex 5a. School life expectancy (expected number of years of formal schooling), for the latest available year

	Year	Number of Years
Belgium	1995	16.9
United Kingdom	1996	16.7
Finland	1996	16.1
Germany	1996	15.9
Norway	1996	15.7
France	1996	15.6
Iceland	1995	15.3
Sweden	1996	15.3
Netherlands	1996	15.1
Denmark	1995	14.9
Austria	1996	14.6
Portugal	1994	14.6
Switzerland	1995	14.2
Greece	1996	13.8
Ireland	1996	13.1
Poland	1994	13.1
Czech Republic	1995	12.9
Estonia	1995	12.7
Bulgaria	1996	12.3
Latvia	1996	12.2
Hungary	1995	12.1
Romania	1996	11.7
Croatia	1994	11.5
Turkey	1994	9.6

Source: UNESCO, *School Life Expectancy by Sex*, accessed on 19 January 2001, at «www.unesco.org» and United Nations, *Women's Indicators and Statistics Database* (Wistat), version 4, CD-ROM (United Nations publication, Sales No.E.00.XVII.4), based on data provided by UNESCO in January 1999.

Annex 5b. Relative proportions of public and private funds for educational institutions by level of education and year in OECD countries, for the 1995-1998 period.

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by level of education and year

	Primary, secondary, and post-secondary non-tertiary education						Tertiary education					
	1998			1995			1998			1995		
	Public sources	Private sources[1]	Private, of which subsidized:	Public sources	Private sources[1]	Private, of which subsidized:	Public sources	Private sources[1]	Private, of which subsidized:	Public sources	Private sources[1]	Private, of which subsidized:
OECD countries												
Australia	84.1	15.9	n	85.5	14.5	0.7	56.1	43.9	12.0	64.2	35.8	8.1
Austria	94.8	5.2	x	96.1	3.9	x	98.9	1.1	x	97.6	2.4	x
Belgium	m	m	m	m	m	m	m	m	m	m	m	m
Canada	91.7	8.3	x	93.7	6.3	na	56.6	43.4	26.1	59.1	40.9	na
Czech Republic	87.5	12.5	n	88.6	11.4	6.8	85.9	14.1	n	71.0	29.0	8.6
Denmark	97.9	2.1	n	97.8	2.2	n	97.2	2.8	n	m	m	n
Finland	m	m	m	m	m	0.6	m	m	m	m	m	2.8
France	92.7	7.3	2.4	92.5	7.5	2.4	85.5	14.5	4.2	84.3	15.7	5.0
Germany	75.9	24.1	n	75.5	24.5	n	92.1	7.9	n	92.7	7.3	n
Greece	m	m	m	m	m	n	m	m	m	m	m	n
Hungary	92.0	8.0	n	91.7	8.3	n	76.6	23.4	2.4	97.5	2.5	n
Iceland	m	m	m	m	m	m	97.7	2.3	x	m	m	m
Ireland	96.9	3.1	n	96.5	3.5	m	72.6	27.4	4.9	69.7	30.3	x:75
Italy	99.0	1.0	n	100.0	n	1.2	74.7	25.3	6.3	82.8	17.2	0.1
Japan	91.7	8.3	m	m	m	m	41.7	58.3	m	m	m	m
Korea	79.3	20.7	0.4	m	m	m	16.7	83.3	0.7	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
Mexico	86.2	13.8	n	83.8	16.2	m	87.9	12.1	n	77.4	22.6	m
Netherlands*	94.3	5.7	3.0	93.9	6.1	3.0	87.5	12.5	9.0	88.3	11.7	10.2
New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
Norway	99.1	0.9	n	98.9	1.1	m	94.0	6.0	x	93.6	6.4	m
Poland	m	m	m	m	m	m	m	m	m	m	m	m
Portugal	99.9	0.1	na	100.0	n	m	92.3	7.7	n	96.5	3.5	m
Spain	89.2	10.8	n	86.6	13.4	n	72.1	27.9	3.9	74.4	25.6	2.0
Sweden	99.8	0.2	na	m	m	m	89.3	10.7	n	m	m	m
Switzerland	88.1	11.9	1.3	m	m	m	98.5	1.5	1.5	m	m	m
Turkey	78.2	21.8	n	94.0	6.0	n	94.2	5.8	2.1	96.6	3.4	4.2
United Kingdom	m	m	m	m	m	0.4	62.7	37.3	12.4	63.9	36.1	16.0
United States[2]	90.8	9.2	x	m	m	m	46.8	53.2	5.7	m	m	m
Country mean	**90.9**	**9.1**	**0.4**	-	-		**77.3**	**22.7**	**4.8**	-	-	
WEI participants												
Argentina	89.4	10.6	x	m	m	m	74.3	25.7	x	m	m	m
Chile	68.7	31.3	na	m	m	m	24.2	75.8	6.7	m	m	m
Indonesia[3]	81.8	18.2	5.9	m	m	m	43.6	56.4	m	m	m	m
Israel	92.8	7.2	1.3	m	m	m	59.4	40.6	6.5	m	m	m
Jordan	100.0	na	na	m	m	m	m	m	m	m	m	m
Peru	61.8	38.2	na	m	m	m	44.6	55.4	n	m	m	m
Philippines[4]	59.7	40.3	x	m	m	m	44.2	55.8	x	m	m	m
Thailand	62.7	37.3	x	m	m	m	32.5	67.5	x	m	m	m
Uruguay	93.1	6.9	na	m	m	m	100.0	na	na	m	m	m

m = missing; n = negligible or zero; na = not applicable

1. Including subsides attributable to payments to educational institutions received from public sources.

To calculate private funds net of subsidies, subtract public subsidies (columns 3, 6, 9) from private funds (columns 2, 5, 8).

To calculate total public funds, add public subsidies (columns 3, 6, 9) to direct public funds (columns 1, 4, 7).

2. Post-secondary non-tertiary data are included in tertiary education or are missing.

3. Year of reference 1999.

4. Year of reference 1997.

Source: OECD.

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Annex 6. Statistical information on higher education in Central and Eastern Europe

Number of students, teaching staff, and population
Number of institutions
Number of students per 100,000 inhabitants
Student/teaching staff ratio

Table 1. Number of students, teaching staff, and population

Country	Number of students					Teaching staff (numbers)	Total population in 2000 (in millions)
	Public	Percent	Private	Percent	Total		
Albania	23.704[1]	100.0	0	0.0	23,704	3.075	3.4
Belarus	241,100	87.0	35,900	13.0	277,000	20,086	10.0
Bulgaria	215,676	88.5	27,916	11.5	243,595	23,329	8.0
Croatia	117,205	98,6	1,646	1.4	118,851	5,585	4.3
Czech Republic	213,207	99.0	2,000	1.0	215,207	14,890	10.3
Estonia	38,511	74.8	12,963	25.2	51,474	3,715	1.4
Hungary	255,943	85.7	42,561	14.3	298,504	22,873	10.2
Latvia	78,156	87.3	11,353	12.7	89,509	5,160	2.3
Lithuania	...	...	...	...	99,140	...	3.7
FYR of Macedonia	39.978	97,7	923	2,3	40,901	2.634[2]	2.0
Moldova	79,713	77,4	23,210	22,6	102,923	7,700	4.3
Poland*	1,106,798	70.1	471,443	29.9	1,578,241	80,208	38.6
Romania	322,129	71.1	130,492	28.9	452,621	26,977	22.4
Russian Federation	4,270,800	90.0	470,600	10.0	4,741,400	...	144.8
Slovak Republic	125,054	99.3	842	0.7	125,896	11,559	5.4
Slovenia	64,989	95.7	2,900	4.3	67,889	...	1.9
Ukraine	...	...	...	...	1,931,000	128,000	49.1

*For Poland, the number of teaching staff indicates only full-time employees (in addition, there are 5,235 part-time and 15,452 short-term contract employees). In case of multiple employment, a particular member of academic staff is counted twice, three times, depending on the number of institutions in which he/she is formally employed.

... Data not available.

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[1] Plus 1.392 part-time students

[2] Public

Table 2. Number of institutions

Country	Number of institutions				
	Public	Percent	Private	Percent	Total
Albania	11[3]	100.0	0	0.0	11
Belarus	42	73.7	15	26.3	57
Bulgaria	79	89.7	9	10.3	88
Croatia	86	90.5	9	9.5	95
Czech Republic	28	66.7	14	33.3	42
Estonia	14	40.0	21	60.0	35
Hungary	30	48.4	32	51.6	62
Latvia	20	60.6	13	39.4	33
Lithuania	38	90.4	4	9.6	42
FYR of Macedonia	2	66.7	1	33.3	34
Moldova	57	50.0	57	50.0	114
Poland	115	37.1	195	62.9	310
Romania	57	40.7	83	59.3	140
Russian Federation	607	62.9	358	37.1	965
Slovak Republic	18	90.0	2	10.0	20
Slovenia	2	18.1	9	81.9	11
Ukraine	816	83.3	163	16.4	979

Table 3. Number of students per 100,000 inhabitants*

Country	Number of students per 100,000 inhabitants
Albania	697
Romania	2,020
Macedonia	2,045
Czech Republic	2,089
Slovak Republic	2,330
Moldova	2,393
Lithuania	2,590
Croatia	2,641
Belarus	2,770
Hungary	2,927
Bulgaria	3,045
Russian Federation	3,274
Slovenia	3,573
Estonia	3,677
Latvia	3,892
Ukraine	3,920
Poland	4,084

*Data presented in this table were calculated based on the data in Table 1.

---

[3] 8 universities, 1 academy of defense, 1 academy of police, 1 nursery high school.

[4] plus the illegal Albanian "University" of Tetovo.

Table 4. Student/teaching staff ratio*

Country	Student/teaching staff ratio**
Croatia	20.9
Poland	19.7
Romania	16.8
Latvia	17.4
Czech Republic	14.4
Slovak Republic	10.9
Estonia	13.9
Belarus	13.8
Moldova	13.4
Hungary	13.1
Bulgaria	10.4
Ukraine	10.0
Albania	13.7
Lithuania	...
Macedonia	15.2
Russian Federation	...
Slovenia	...

* Please note that a 'multiple teaching position' is quite a common practice in some Central and Eastern Europe countries.

... Data not available.

** Data presented in this table were calculated based on the data in Table 1.

Sources:

Central Statistical Office. Higher Schools and Their Finances in 2000. Warsaw, 2001.

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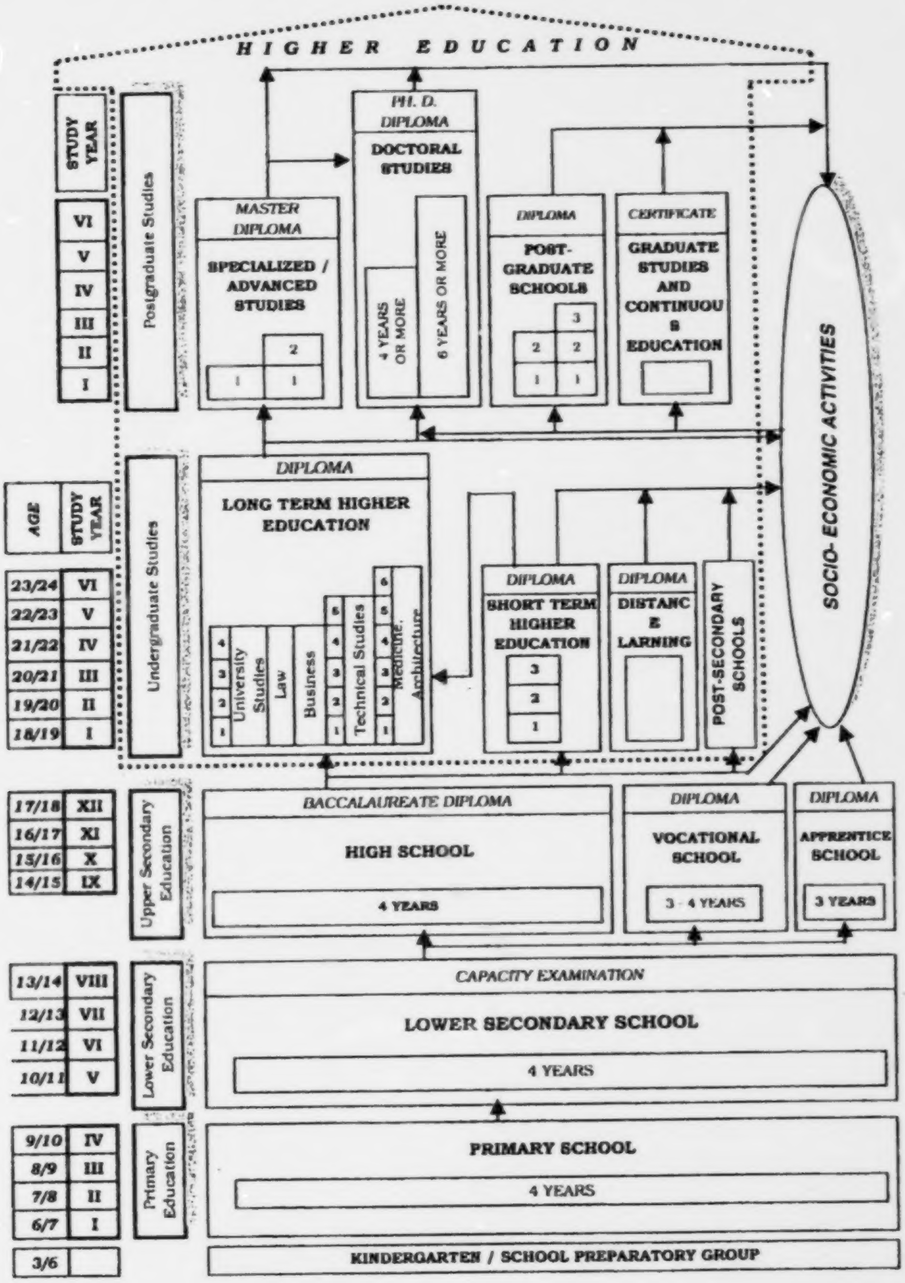
Internet data sources:

•http://www.org.uva.nl/eair/porto/papers/Hagelund%20Poster.pdf•
•http://www.std.lt/STATISTIKA/Gyventojai/Liet_gyventojai_e.htm•
•http://www.sigov.si/vrs/ang/slovenia/education.html•
•http://www.education.gov.ua:8800/edu/•
•http://www.education.gov.ua:8800/edu/docs/common/higher_educ_eng.html•

Data sources for population:

•http://dsbb.imf.org/country.htm•
•http://www.prb.org/template.cmf?template=InterestDisplay.cmf&InterestCategoryID=215•

Annex 7. The Romanian educational system


HIGHER EDUCATION
STUDY YEAR
VI
V
IV
III
II
I
Postgraduate Studies
MASTER DIPLOMA
SPECIALIZED / ADVANCED STUDIES
2
1
1
PH. D. DIPLOMA
DOCTORAL STUDIES
4 YEARS OR MORE
6 YEARS OR MORE
DIPLOMA
POST-GRADUATE SCHOOLS
3
2
2
1
1
CERTIFICATE
GRADUATE STUDIES AND CONTINUOUS EDUCATION
SOCIO- ECONOMIC ACTIVITIES
AGE
STUDY YEAR
23/24
VI
22/23
V
21/22
IV
20/21
III
19/20
II
18/19
I
Undergraduate Studies
DIPLOMA
LONG TERM HIGHER EDUCATION
University Studies
Law
Business
Technical Studies
Medicine, Architecture
1
2
3
4
5
6
DIPLOMA
SHORT TERM HIGHER EDUCATION
3
2
1
DIPLOMA
DISTANCE LARNING
POST-SECONDARY SCHOOLS
17/18
XII
16/17
XI
15/16
X
14/15
IX
Upper Secondary Education
BACCALAUREATE DIPLOMA
HIGH SCHOOL
4 YEARS
DIPLOMA
VOCATIONAL SCHOOL
3 - 4 YEARS
DIPLOMA
APPRENTICE SCHOOL
3 YEARS
13/14
VIII
12/13
VII
11/12
VI
10/11
V
Lower Secondary Education
CAPACITY EXAMINATION
LOWER SECONDARY SCHOOL
4 YEARS
9/10
IV
8/9
III
7/8
II
6/7
I
Primary Education
PRIMARY SCHOOL
4 YEARS
3/6
KINDERGARTEN / SCHOOL PREPARATORY GROUP

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Annex 8. Gross enrollment ratios in higher education in Romania for the 1970–1999 period

Year	Overall	Male	Female
1970	9.3	10.3	8.1
1975	8.9	9.7	8.1
1980	12.1	13.6	10.5
1981	12.3	13.7	10.7
1982	11.8	13.2	10.2
1983	11.3	12.5	10.0
1984	10.6	11.7	9.5
1985	10.0	10.7	9.1
1986	9.4	9.8	8.9
1987	8.9	9.2	8.6
1988	8.6	8.7	8.4
1989	8.5	8.6	8.4
1990	9.7	10.0	9.3
1991	10.7	11.4	10.1
1992	16.1	16.8	15.4
1993	18.7	19.5	17.8
1994	19.7	20.4	18.9
1995	18.3		
1996	22.5	20.8	24.3
1997	22.7		
1998	25.4		
1999	28.0		

Source: UNESCO Statistical Yearbook 1999, Education and Literacy, Gross enrollment ratios by level of education, Table II.S, at •http://unescostat.unesco.org/statsen/statistics/yearbook•; *World Education Report 2000, UNESCO's World Education Indicators*, Appendices II and III of WER 2000, Regional tables (1 – 14) and Country tables (1 – 11), at •http://www.unesco.org/education/information/wer/htmlENG/><.

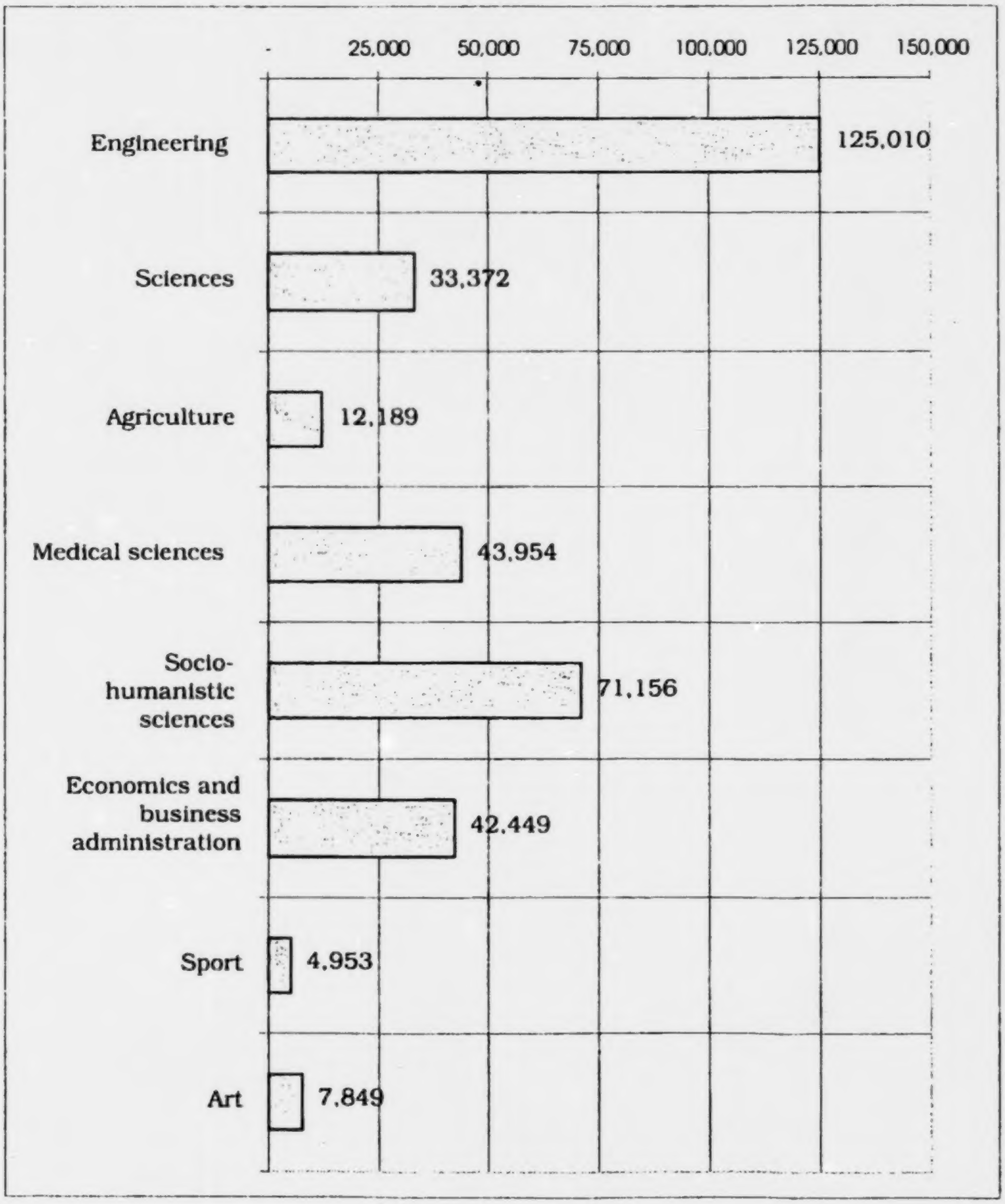
Annex 9. Gross enrollment ratios in higher education, by sex, in Romania, for the 1970 – 1999 period

Year	Both sexes	Male	Female
1970	9.3	10.3	8.1
1975	8.9	9.7	8.1
1980	12.1	13.6	10.5
1981	12.3	13.7	10.7
1982	11.8	13.2	10.2
1983	11.3	12.5	10.0
1984	10.6	11.7	9.5
1985	10.0	10.7	9.1
1986	9.4	9.8	8.9
1987	8.9	9.2	8.6
1988	8.6	8.7	8.4
1989	8.5	8.6	8.4
1990	9.7	10.0	9.3
1991	10.7	11.4	10.1
1992	16.1	16.8	15.4
1993	18.7	19.5	17.8
1994	19.7	20.4	18.9
1995	18.3		
1996	22.5	20.8	24.3
1997	22.7		
1998	25.4		
1999	28.0		

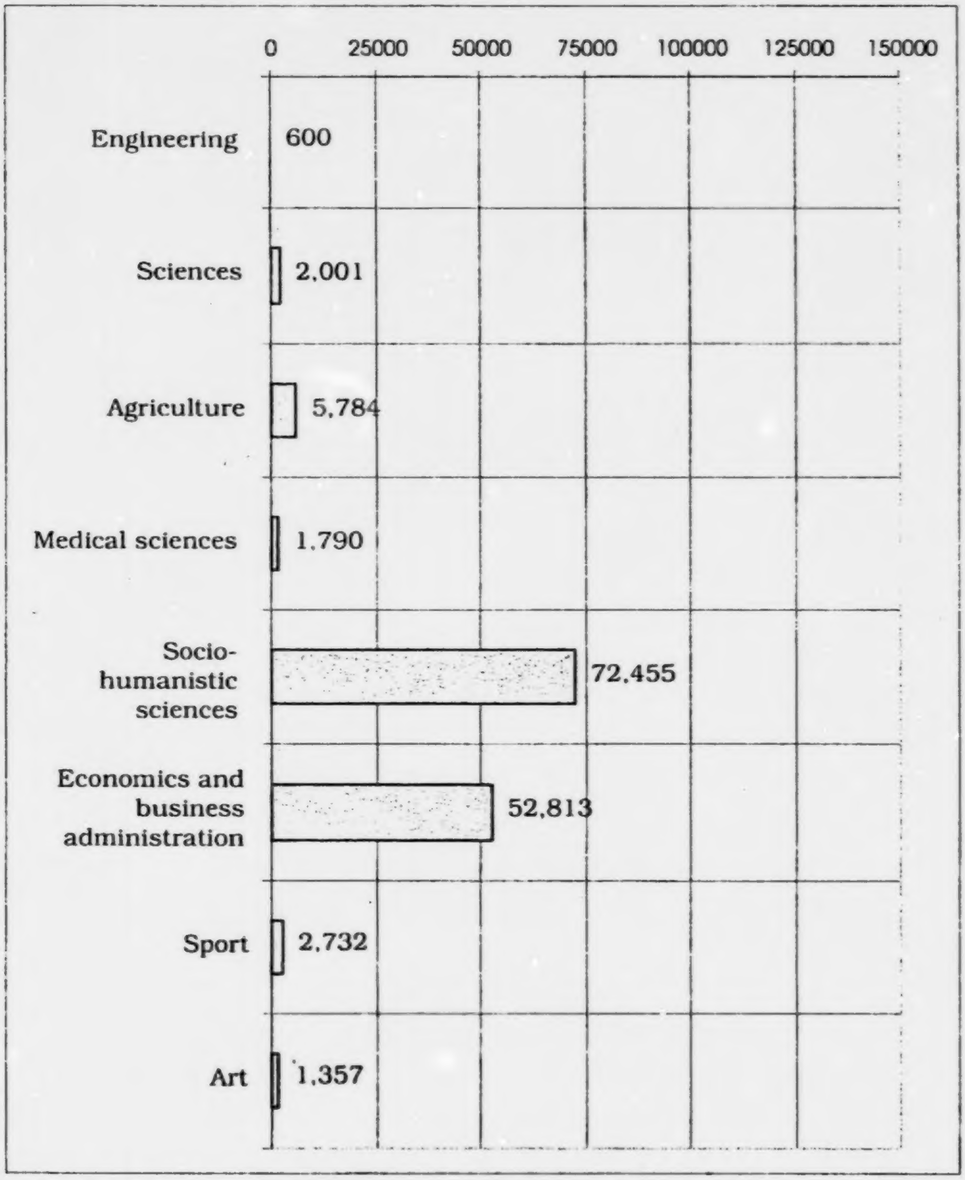
Source: UNESCO Statistical Yearbook 1999, Education and Literacy, Gross enrollment ratios by level of education, Table II.S, at «http://unescostat.unesco.org/statsen/statistics/yearbook»; *World Education Report 2000, UNESCO's World Education Indicators*, Appendices II and III of WER 2000, Regional tables (1 – 14) and Country tables (1 – 11), at «http://www.unesco.org/education/information/wer/htmlENG/».

Annex 10. Numbers of students by specialized fields of study *(e.g.,* Engineering) in private and public universities in Romania, during the 2000-2001 academic years

a) Public universities*)



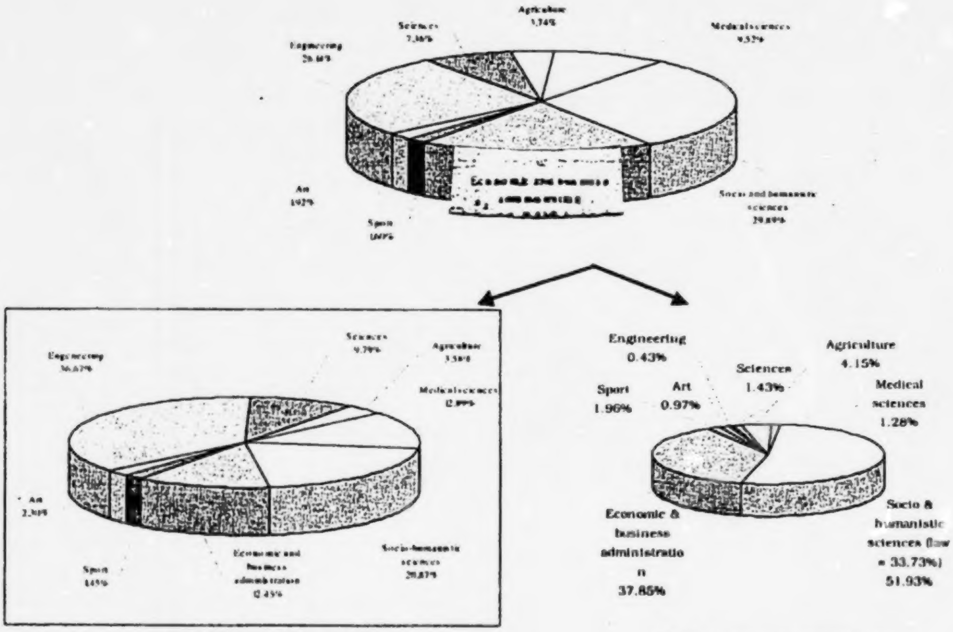
a) Private universities



*) Only bugetary students (about 90 percent of the total equivalent number of the students in the public sector)

Source: - for Romanian public universities: Statistics from the National Higher Education Financing Council, 2001;
- for Romanian private universities: Statistics from the National Council of Academic Assessment and Accreditation, 2001.

Annex 11. Percentage breakdown of students by specialized fields of study in private universities in Romania during the 2000-2001 academic year



a) Public universities

b) Private universities

Source:
- for Romanian public universities: Statistics from the National Higher Education Financing Council, 2001;
- for Romanian private universities: Statistics from the National Council of Academic Assessment and Accreditation, 2001

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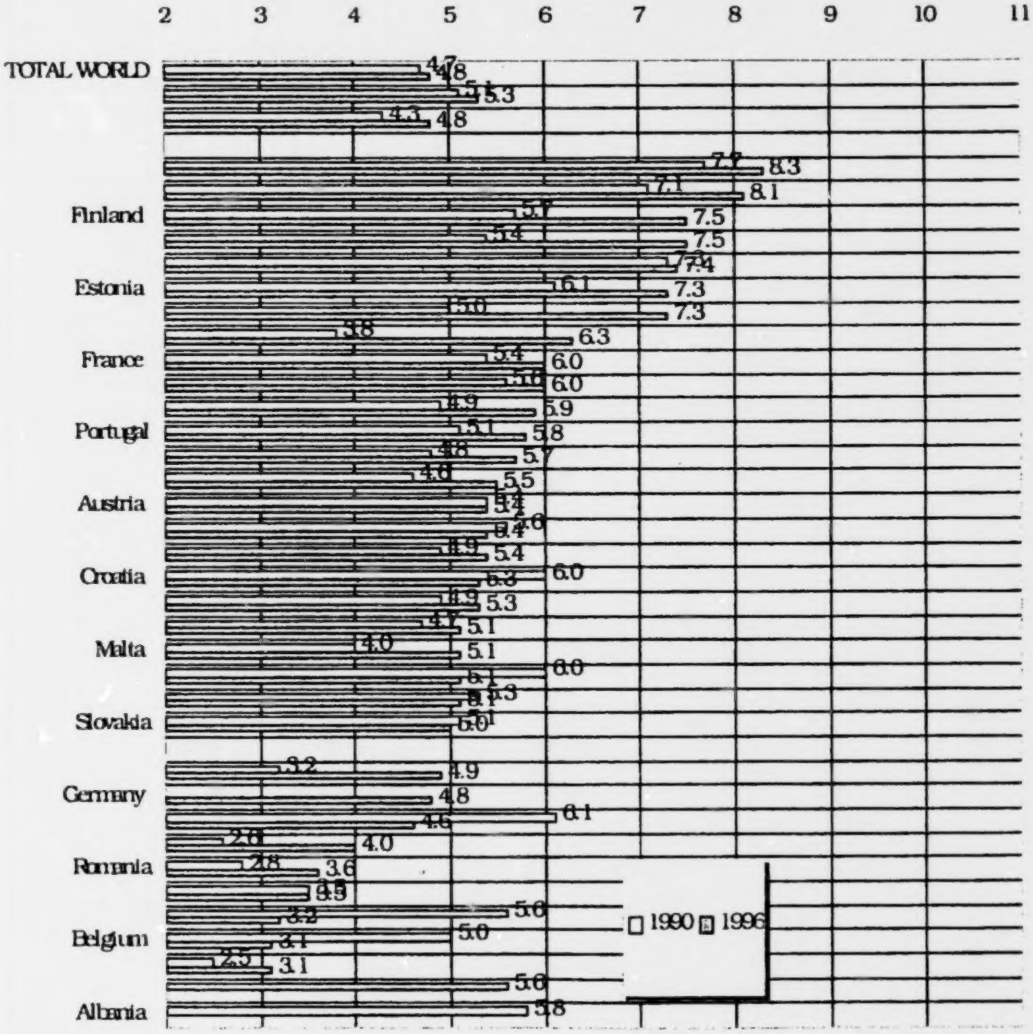
Annex 12. Public expenditures as percentage of GNP for the 1970 – 1996 period, as compared to the global average, European average, and the average of a group of countries in transition

Country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Albania				5.80				3.10		
Austria	5.9	5.7	5.5	5.4	5.6	5.7	5.5		5.6	5.4
Belarus	5.0	5.1	5.0	4.9	5.7	6.6	6.8	7.0	5.6	5.9
Belgium	5.1	4.8	5.0	5.0	5.0	5.0	5.5	5.6	3.1	3.1
Bulgaria	5.4	5.4	5.5	5.6	6.0	5.9	5.6	4.7	3.9	3.2
Croatia				6.0	6.0	4.1		5.0	5.3	5.3
Czech Republic				4.7		4.7	5.9	5.6	5.4	5.1
Denmark	7.2	7.4	7.2	7.1	7.1		8.1	7.8	7.7	8.1
Estonia				6.1		6.1	7.0	6.7	7.0	7.3
Finland	5.5	5.4	5.4	5.7	6.8	7.2	8.3	7.6	7.5	7.5
France	5.5	5.4	5.4	5.4	5.8	5.7	5.8	5.9	6.1	6.0
Germany							4.8	4.7	4.8	4.8
Greece	2.2	2.3	2.4	2.5	2.3		2.8	2.4	2.9	3.1
Hungary	5.6	5.3	6.0	6.1	6.4	6.8	6.7	6.6	5.3	4.6
Iceland	4.8	5.3		5.6			5.4	5.0	5.0	5.4
Ireland	6.7	6.1	5.8	5.6	5.7	6.0	6.2	6.3	6.0	6.0
Italy		4.9	4.1	3.2	3.1	4.2	5.2	4.9	4.7	4.9
Latvia		3.8	3.8	3.8	4.1	4.5	6.0	6.1	6.7	6.3
Lithuania		5.3	5.2	4.6	5.5	5.3	4.6	5.6	5.6	5.5
Luxembourg	4.1	4.1	4.0	2.6	2.6	2.8	3.1	3.1	4.1	4.0
Malta	3.4	3.6	3.8	4.0	4.1	4.6	5.2	5.2	5.2	5.1
Netherlands	6.9	6.5	6.0	6.0	5.9		5.4	5.2	5.2	5.1
Norway	6.5	6.8	7.1	7.3	7.4	7.7	8.2	8.2	8.1	7.4
Poland	4.6			5.4	5.4	5.5	5.5	5.3	5.2	7.5
Portugal				5.1						5.8
Republic of Moldova				5.6						10.6
Romania		2.3		2.8	3.5	3.6	3.2	3.0		3.6
Russian Federation	3.4	3.6	3.4	3.5	3.6	3.7	4.1		3.5	3.5
Slovakia				5.1						5.0
Slovenia				4.8						5.7
Spain				4.4						5.0
Sweden				7.7						8.3
Switzerland	4.7	4.8	4.7	4.9	5.2		5.4	5.5	5.4	5.4
The FYR of Macedonia				5.3						5.1
Ukraine				5.0						7.3
United Kingdom				4.9						5.3
TOTAL WORLD				**4.7**						**4.8**
Europe				**5.1**		...				**5.3**
Countries in transition				**4.3**						**4.8**

Source: *UNESCO Statistics*, WORLD Educational Indicators, Indicators on Resources, Population and GNP, Financial, Public expenditure on education as percentage of gross national product and as percentage of government expenditure, at •http://unescostat.unesco.org/en/stats/stats0.htm•

Annex 13. Evolution of public expenditure as percentages of GNP for the years 1990 and 1996, as compared to the global average, European average, and the average of a group of countries in transition



Source: UNESCO Statistics, World Educational Indicators, Indicators on Resources, Population and GNP, Financial, Public expenditure on education as percentage of gross national product and as percentage of government expenditure, at •http://unescostat.unesco.org/en/stats/stats0.htm•

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Annex 11. Estimated public expenditure on higher education per student, for the year 1996, for a selected number of European countries (in USD)

Country or territory	Population (000) (1997)	GNP per capita (1997)		Public expenditure on education (1996)			Public Curent Expenditure on Higher Education (1996)			Number of students per 100,000 inhabitants (1996)	Number of students (1996)	Public Total expenditure per student (USD)
		USD	TOTAL (USD)	As percentage of GNP	Public expenditure on education (USD)	Current expenditure as percentage of total	Percentage distribution of current expenditure on HE	Current expenditure on HE (%)	Public Current expenditure on HE (USD)			
			(col. 2 * col. 3)		(col. 4 * col. 5)			(100/col. 7)* col. 8	(col. 6 * col. 9)		(col. 2 * col.11)/100	(col. 10 / col. 12)
1	2	3	4	5	6	7	8	9	10	11	12	13
Albania	3,132	760	2,380,320,000	3.1	73789920.0	90.8	10.3	11.3	8370442.5	1,087	34,045	245.9
Austria	8,099	27,920	226,124,080,000	5.4	12210700320.0	91.2	21.2	23.2	2838452267.4	2,988	241,998	11,729.2
Belarus	10,351	2,150	22,254,650,000	5.9	1313024350.0	91.1	11.1	12.2	159984306.1	3,168	327,920	487.9
Belgium	10,127	26,730	270,694,710,000	5.6	15158903760.0	99.1	21.5	21.7	3288763177.0	3,551	359,610	9,145.4
Bulgaria	8,393	1,170	9,819,810,000	3.2	314233920.0	95.5	18.0	18.8	59227335.7	3,110	261,022	226.9
Czech Republic	10,301	5,240	53,977,240,000	5.1	2752839240.0	86.4	15.8	18.3	503412731.4	2,009	206,947	2,432.6
Denmark	5,256	34,890	183,381,840,000	8.1	14853929040.0	94.1	22.0	23.4	3472757055.0	3,349	176,023	19,728.9
Estonia	1,447	3,360	4,861,920,000	7.3	354920160.0	87.3	17.9	20.5	72772862.1	2,965	42,904	1,696.2
Finland	5,141	24,790	127,445,390,000	7.5	9558404250.0	93.4	28.9	30.9	2957579045.2	4,418	227,129	13,021.6
France	58,472	26,300	1,537,813,600,000	6.0	92268816000.0	92.3	17.9	19.4	17893952398.7	3,541	2,070,494	8,642.4
Germany	82,057	28,280	2,320,571,960,000	4.8	111387454080.0	90.8	22.5	24.8	27601516704.8	2,603	2,135,944	12,922.4
Hungary	10,156	4,510	45,803,560,000	4.6	2106963760.0	92.0	15.5	16.8	354977590.0	1,903	193,269	1,836.7
Ireland	3,658	17,790	65,075,820,000	6.0	3904549200.0	95.0	23.8	25.1	978192325.9	3,702	135,419	7,223.4
Italy	57,377	20,170	1,157,294,090,000	4.9	56707410410.0	95.3	15.1	15.8	8985119592.8	3,299	1,892,867	4,746.8
Latvia	2,461	2,430	5,980,230,000	6.3	376754490.0	96.6	12.2	12.6	47581830.0	2,248	55,323	860.1
Lithuania	3,705	2,260	8,373,300,000	5.5	460531500.0	95.1	18.3	19.2	88619626.2	2,251	83,400	1,062.6
Malta	381	9,330	3,554,730,000	5.1	181291230.0	91.9	10.9	11.9	21502441.9	2,183	8,317	2,585.3
Netherlands	15,614	25,830	403,309,620,000	5.1	20568790620.0	96.0	29.3	30.5	6277766303.8	3,018	471,231	13,322.1
Norway	4,396	36,100	158,695,600,000	7.4	11743474400.0	92.1	27.9	30.3	3557469443.6	4,239	186,346	19,090.6
Poland	38,693	3,590	138,907,870,000	7.5	10418090250.0	92.9	14.6	15.7	1637288672.2	1,865	721,624	2,268.9
Portugal	9,864	11,010	108,602,640,000	5.8	6298953120.0	92.8	16.4	17.7	1113177060.0	3,242	319,791	3,481.0
Republic of Moldova	4,376	460	2,012,960,000	10.6	213373760.0	96.7	13.3	13.8	29347166.6	2,143	93,778	312.9
Romania (public stud.)	22,549	1,410	31,794,090,000	3.6	1144587240.0	92.5	16.0	17.3	197982657.7	1,819	287118.6	689.6
Slovakia	5,372	3,680	19,768,960,000	5.0	988448000.0	92.9	12.7	13.7	135126906.4	1,897	101,907	1,326.0
Slovenia	1,995	9,840	19,630,800,000	5.7	1118955600.0	93.4	16.9	18.1	202466270.2	2,657	53,007	3,819.6
Spain	39,613	14,490	573,992,370,000	5.0	28699618500.0	91.9	16.6	18.1	5184044255.7	4,254	1,685,137	3,076.3
Switzerland	7,250	43,060	312,185,000,000	5.4	16857990000.0	90.5	19.3	21.3	3595129359.1	2,072	150,220	23,932.4

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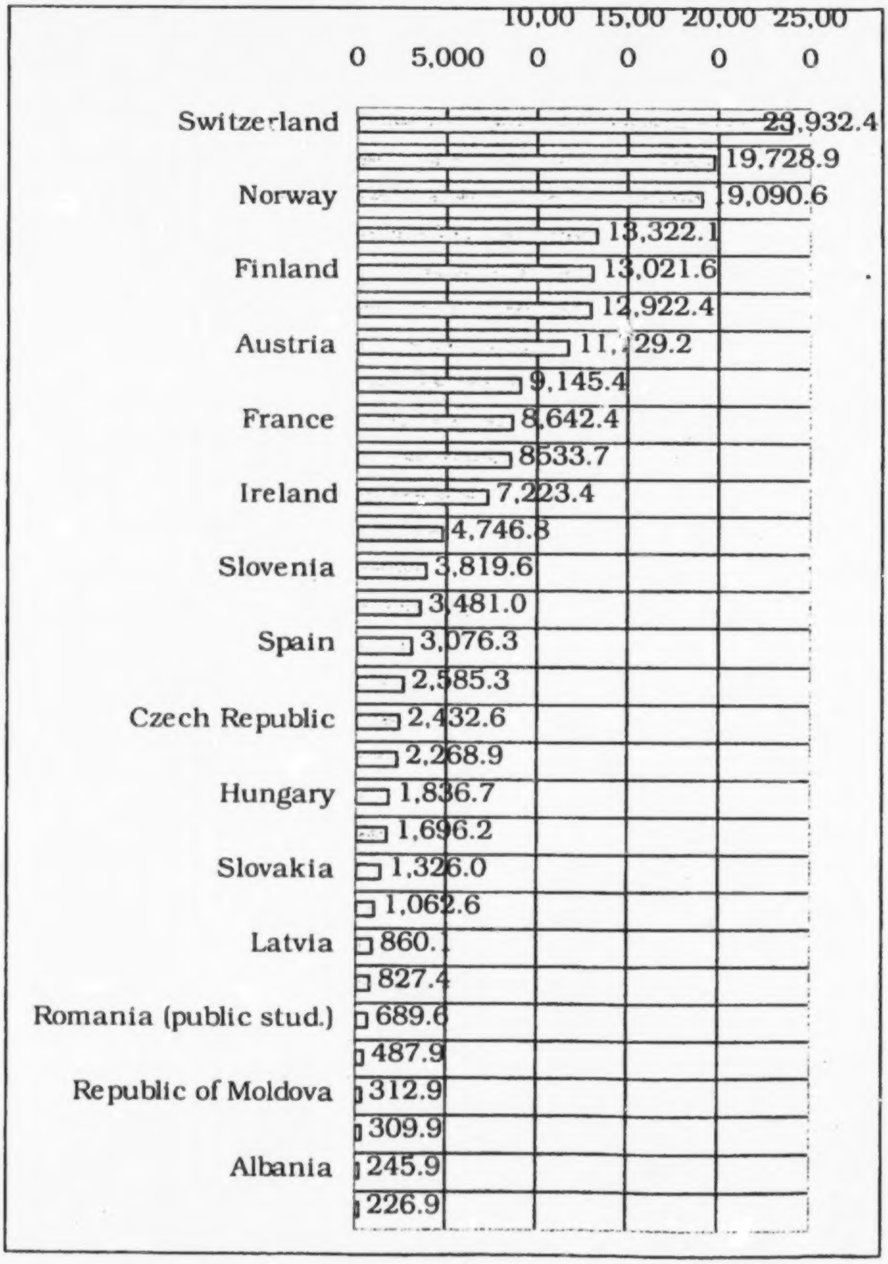
Country or territory	Population (000) (1997)	GNP per capita (1997)		Public expenditure on education (1996)			Public Curent Expenditure on Higher Education (1996)			Number of students per 100,000 inhabitants (1996)	Number of students (1996)	Public Total expenditure per student (USD)
		USD	TOTAL (USD)	As percentage of GNP	Public expenditure on education (USD)	Current expenditure as percentage of total	Percentage distribution of current expenditure on HE	Current expenditure on HE (%)	Public Current expenditure on HE (USD)			
			(col. 2 * col. 3)		(col. 4 * col. 5)			(100/col. 7)* col. 8	(col. 6 * col. 9)		(col. 2 * col.11)/100	(col. 10 / col. 12)
1	2	3	4	5	6	7	8	9	10	11	12	13
The FYR of Macedonia	1,987	1,100	2,185,700,000	5.1	111470700.0	95.8	22.0	23.0	25598699.4	1,557	30,938	827.4
Ukraine	51,062	1,040	53,104,480,000	7.3	3876627040.0	87.5	10.7	12.2	474056106.6	2,996	1,529,818	309.9
United Kingdom	58,544	20,870	1,221,813,280,000	5.3	64756103840.0	94.9	23.7	25.0	16171966923.2	3,237	1,895,069	8,533.7

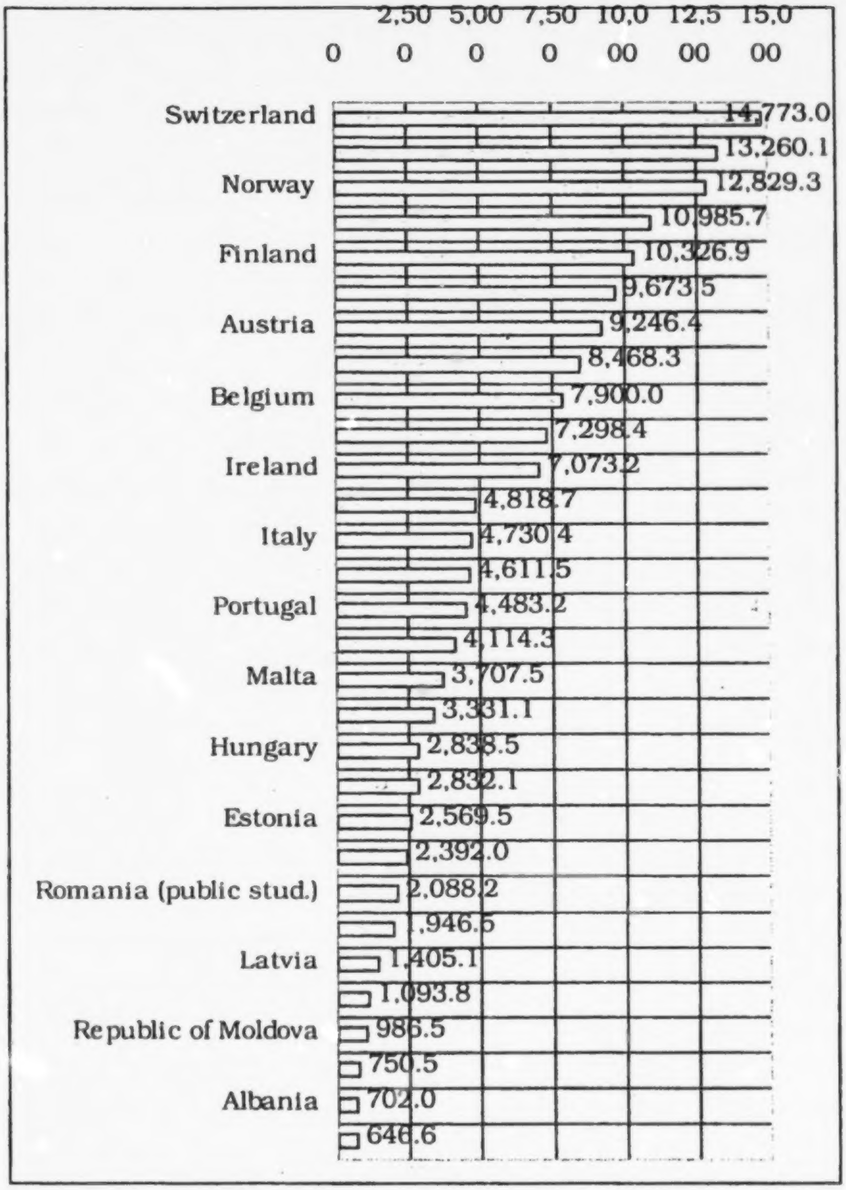
Source: *UNESCO Statistics*, World Educational Indicators, Indicators on Resources, Population and GNP, Financial, Public expenditure on education as percentage of gross national product and as percentage of government expenditure, at <http://unescostat.unesco.org/en/stats/stats0.htm>

Annex 15. Estimated public expenditures on higher education per student, for the year 1996, for a selected number of European countries (USD and purchasing power parity)

(USD/student)



PPP (purchasing power parity)



Source: UNESCO Statistics, World Educational Indicators, Indicators on Resources, Population and GNP, Financial, Public expenditure on education as percentage of gross national product and as percentage of government expenditure, at «http://unescostat.unesco.org/en/stats/stats0.htm»

Annex 16. The evolution of the cost coefficients by fields of study for the period 1991 – 2001 in Romania

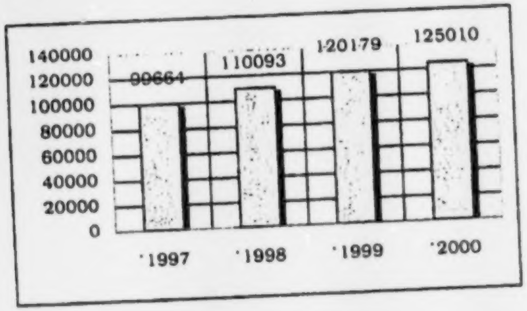
Fields	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Socio-humanistic sciences	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Medical sciences	0.90	1.16	1.29	1.30	1.45	1.59	1.32	1.71	1.71	1.87	1.90	1.90
Engineering	0.51	0.75	0.86	0.96	1.14	1.23	1.39	1.47	1.47	1.60	1.65	1.65
Agriculture	1.20	1.56	1.51	1.57	1.80	1.94	1.29	1.64	1.64	1.64	1.69	1.69
Arts	2.37	1.78	1.89	2.20	2.26	2.21	2.27	2.48	2.48	2.48	3.50	3.50
Economic and business administration	0.64	0.69	0.80	0.74	0.71	0.72	0.63	1.00	1.00	1.00	1.00	1.00
Sports					1.45	1.67	1.17	1.84	1.84	1.86	1.86	1.86

Source: Statistics from the National Higher Education Financing Council, Romania, 2001

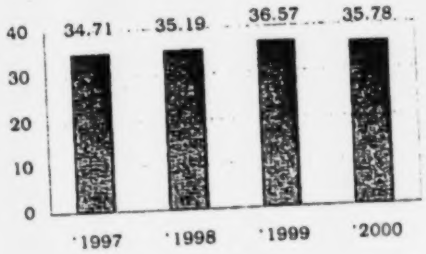
Annex 17. The number of equivalent students in the budget system, the number of students (by fields of study) financed from the state budget and the budget distribution by fields of study for the period 1991 – 2001 in Romania

Number of equivalent budgetary students

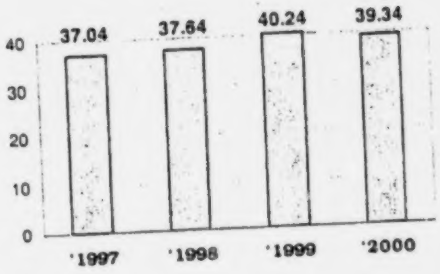
Engineering



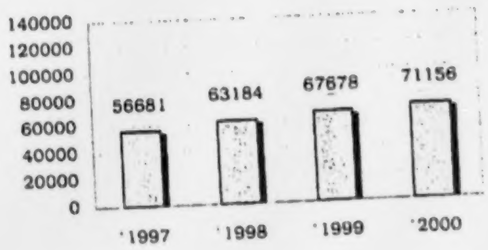
Percent of equiv. budgetary students

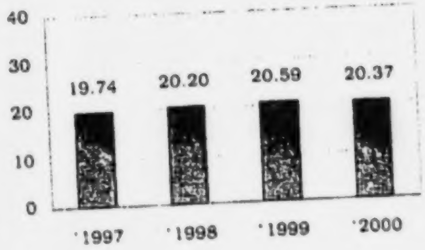


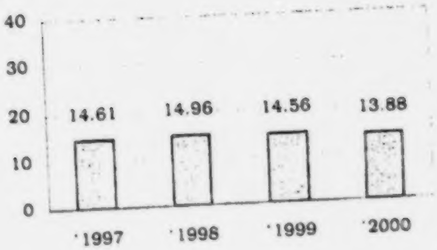
Percent of budget by fields



Socio-humanistic Sciences

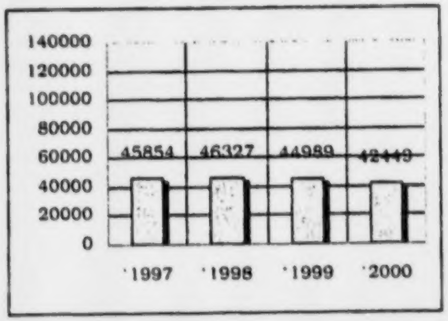


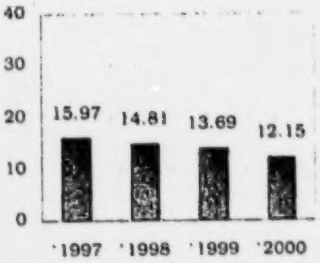


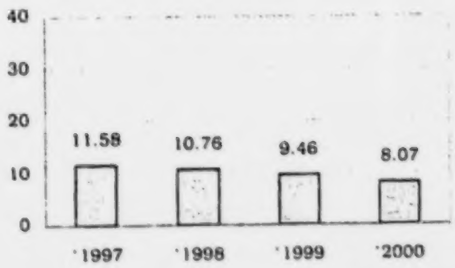


Number of equivalent budgetary students Percent of equiv. budgetary students Percent of budget by fields

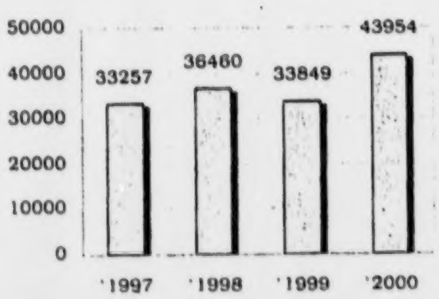
Economics and Business Administration

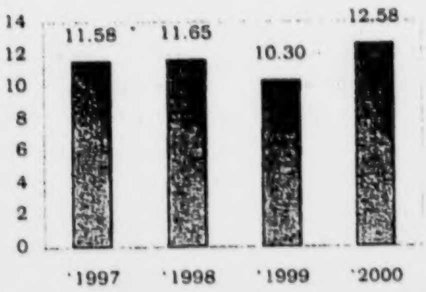


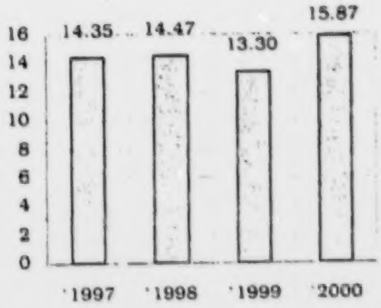




Medical Sciences





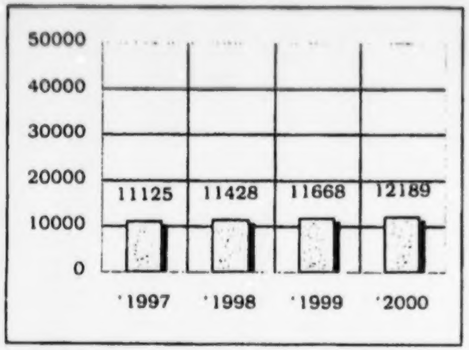


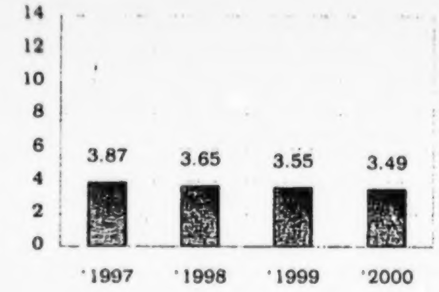
Number of equivalent budgetary students

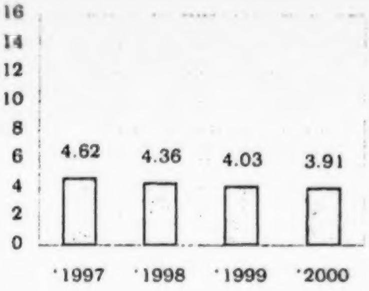
Percent of equiv. budgetary students

Percent of budget by fields

Agriculture







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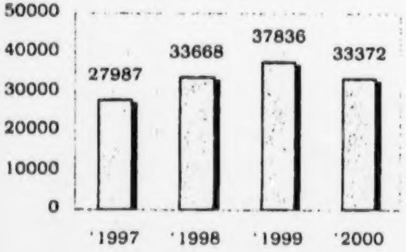
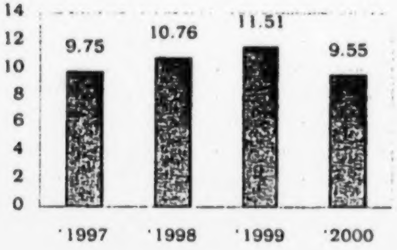
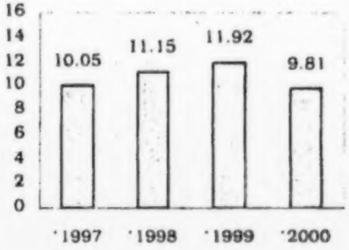




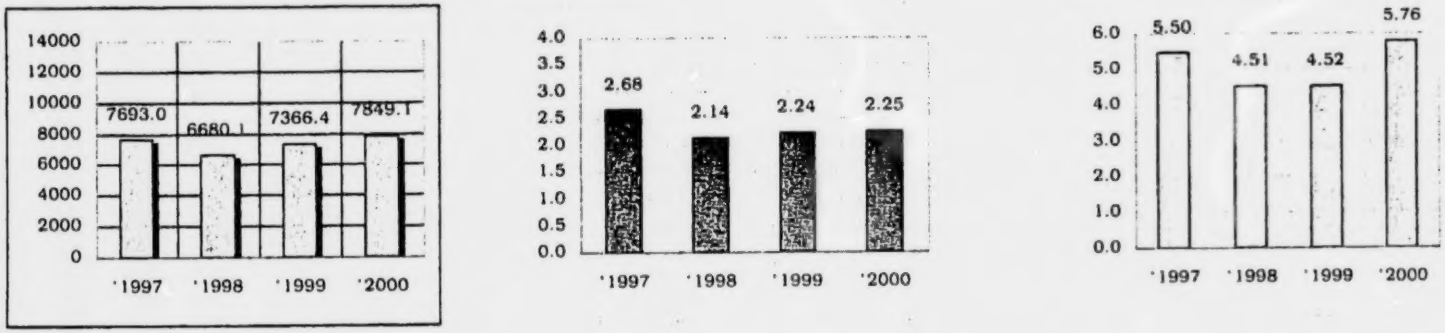


Number of equivalent budgetary students

Percent of equiv. budgetary students

Percent of budget by fields

Arts



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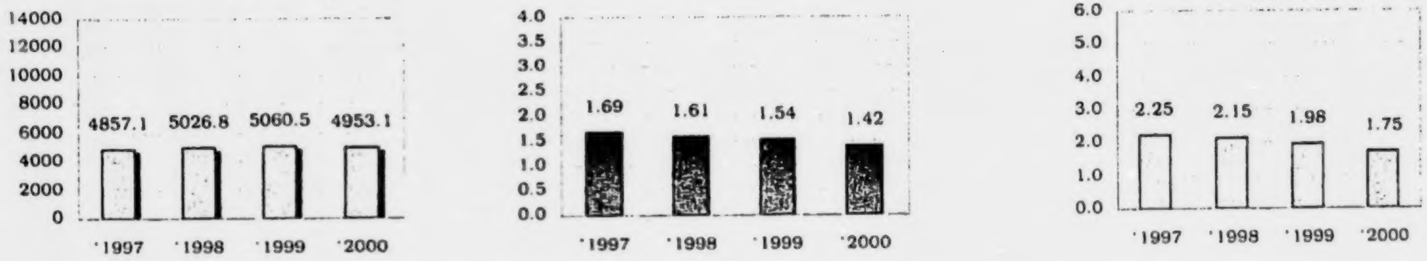

Source: Statistics from the National Higher Education Financing Council, Romania, 2001.

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